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SPECIALIZED OIL JOURNALS

Published by

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The Oil Man's Calendar

FEB. 9–12	**American Institute of Mining and Metallurgical Engineers, Annual Meeting, New York.**
26–27	**American Petroleum Institute Division of Production, Southwestern District, Dallas, Texas.**
28	**North Texas Oil and Gas Association, Wichita Falls, Texas.**
MAR. 23–25	**American Society of Mechanical Engineers, Houston, Texas.**
APRIL 16–17	**National Petroleum Association, Thirty-ninth Semi-Annual Meeting, Hotel Cleveland, Cleveland, Ohio.**
21–24	**American Association of Petroleum Geologists, Twenty-seventh Annual Meeting, Cosmopolitan Hotel, Denver, Colorado.**
22–24	**Petroleum Industry Electrical Association, Shreveport, Louisiana.**
NOV. 9–13	**American Petroleum Institute, Chicago.**

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Published every Monday. Single Copies 15 cents (Special Issues 50c). Subscription price: domestic and foreign, $2.00 a year; 2 years $3.00. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1879. Subscription restricted to those engaged in the producing and pipe line branches of the oil industry or the manufacturing and distribution of oil field supplies. Advertising rates on application.

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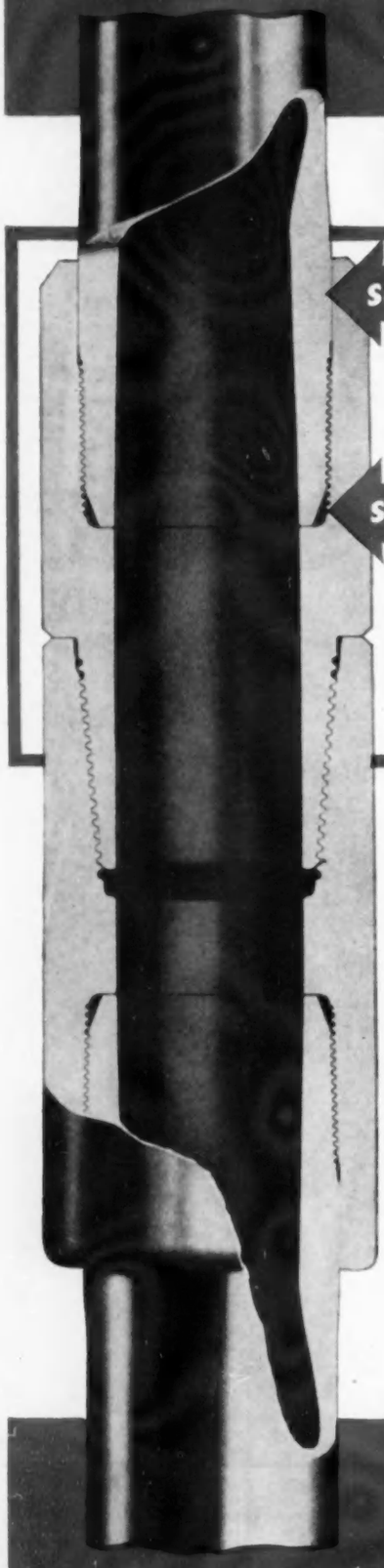

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The Changing Panorama

War Brings New Oil Allowable Factors

Need For Certain Products Dictates That High Yield Crudes Be Produced

War brings a new factor into the considerations of crude oil production allowables. The urgent need for greatly increased quantities of certain products, namely, high-octane aviation gasoline and bunker fuels, dictates that special consideration be given to those crudes and those areas that can quickly provide the highest yield of the required products. The former proration plans based on equity of output must give way to expediency for the war effort.

It is reasonable to expect that as new allowable schedules are prepared that they will include material increases for fields and areas producing crudes that yield high-octane gasoline and such increases may be made at the expense of other producing districts. This is as it should be, and it is not expected that the industry will protest such action. Likewise preference will be given to fields where output can be quickly increased and where transportation facilities are available.

However, it must be remembered in establishing new and higher allowables that increased production of crude does not mean increased quantities of aviation gasoline unless the industry is prepared to transport and refine the increased output. Production of high-octane-value crudes and other desired oils should be kept in ratio with the industry's abilities to step up aviation gasoline output.

California's Burden . . .

So long as America's military activities are centered in the Pacific Ocean, the principal burden of replenishing the fuel and lubricants used by the fighting services must fall on the California oil industry because of its location. Some supplies will no doubt be available in the Netherlands East Indies for supplying Singapore and possibly the Philippines. Lack of transportation facilities other than railroads and long distances hinder shipments from other areas of the United States.

To meet the heavy requirements imposed by wartime activity, complete reorientation of the Pacific Coast oil situation may be necessary. Major changes are inevitable.

While it is too early to detail a broad program of operation for the California industry in the face of emergency conditions yet but a few days old, it is probable that changes must be made in the state's uniform proration formula setup so that the necessary volumes of particular quality oils can be supplied to the point of need in the most convenient manner. Due to a shortage of tankers on the West Coast and their need in transporting supplies to fighting regions, those fields which heretofore have depended upon tankships for moving their output to refineries may have to take a back seat while fields more favorably located with respect to pipe lines are called upon to produce increased amounts.

One of the critical shortages facing the industry in California is in the matter of available aviation gasoline processing facilities. Unquestionably, the country's aviation fuel needs to feed fighting forces in the Pacific will pyramid from week to week. Surplus stocks now on hand are not large. First attention, therefore, will doubtless be given to expanding these facilities as rapidly as possible. Until plant facilities can be completed, railroad shipments from other regions to the West Coast probably will be initiated.

At the end of October petroleum supplies in storage in the Pacific Coast territory approximated 139,000,000 barrels. Based on total utilization of about 700,000 barrels daily in the area, this total was distributed to 62 days supply of light crude, 127 days supply of heavy crude, 83 days of gasoline, 185 days of gas and diesel oil, 186 days of fuel oil, and 183 days of miscellaneous products. Now that the Army and Navy will be needing larger quantities, the days' supplies held in storage on the Pacific Coast have shrunk proportionately to the increase.

Already Petroleum Coordinator Ickes has appointed committees to investigate the supply situation in the Pacific Northwest and Alaska, and a second committee to study transportation problems.

Allowable Bonus for Discovery Wells

This Plan Would Be Another Means of Encouraging More Wildcatting

For months many words have been written and spoken with respect to the urgency of the industry finding new additional fields, in order to meet the increased demand. Now that the war has spread to the Far East, and continues on an intensive scale in Europe and North Africa as well, petroleum requirements are due to increase further. Therefore, it is more imperative today that additional supplies of crude oil be found than was the case even 10 days ago.

The way to encourage new prospecting, a necessary requisite to discovering new fields, is to make conditions sufficiently profitable that the venturesome wildcatter can afford to take a chance of losing considerable capital. The big need of the moment, as often mentioned in these columns of late, is an increase in the price of crude oil.

But why not give a bonus to the discoverers of new fields also? To further encourage wildcatting, the regulatory authorities of the various states should definitely announce that very liberal allowables will be granted to the discoverers of new fields, as suggested by Col. E. O. Thompson, chairman of the Texas Railroad Commission, in addressing the East Texas Chapter of the American Petroleum Institute last week. For example, regulatory authorities might devise a sliding allowable scale that would give the discovery well of a new field producing from a depth of 5000 feet an allowable of 500 barrels daily until 20 wells had been brought into production. Wells discovered at 10,000 feet could be given an allowable of 1000 barrels daily until 10 producing wells had been completed.

This would make it possible for capital to hunt for new fields, and such venturesome pioneers would be rewarded to the point they could afford to take the risks involved in such operations.

EDITORIAL

At War!

By RAY L. DUDLEY, Publisher

WITH the United States definitely at war with all of the Axis powers new obligations will fall to the lot of the petroleum industry. These obligations may grow to unpredictable heights. The least they call for is an all-out effort and all-out cooperation between elements of the industry and between industry and government.

Gone with the blast of last Sunday's attack on Pearl Harbor is the dissention which has marked the course of events in the United States during the past several months. In its stead has come a mighty unity of purpose which has a peculiar meaning to the oil industry.

Oil is a defense industry of the first magnitude. It must have all of the steel and other supplies needed to carry out its part in national defense and international offense. But this does not mean that a single ton of steel should be wasted. Unquestionably, the situation calls for the most efficient use of materials—and in the application of efficiency some will be hurt in the interest of the national welfare. If that happens it will be placed under the category of the fortunes of war.

We are in this war to the uttermost limits of our abilities and our resources: physical, mental and spiritual. *Everything we hold dear is at stake.*

New Priority Rating . . .

First of a series of priority orders designed to put the oil industry on a war basis, issued by OPM December 8, had the effect of classifying materials needed by the petroleum industry as defense requirements, since orders for equipment to be used in the production, refining, transportation or marketing of petroleum were given a defense rating of A-8.

While the order specifically covers supply houses, an interpretation by OPM extended its coverage to tool or equipment manufacturers engaged exclusively in furnishing materials to the industry.

Apparently the new order and its immediate broader interpretation was brought about by the engagement of the nation in actual warfare. The new order is known as the Petroleum Supply House Rating Plan-Preference Rating Order P-83. Its application will be handled by the petroleum coordinator. The procedure is for a manufacturer to file four copies of Form PD-82A with the Office of Petroleum Coordinator, then the director of priorities returns to the manufacturer a statement as to the quantity of materials to which he may assign the A-8 rating. However, the manufacturer cannot sell any of this material unless the purchaser supplies him with a rated order.

Additional orders are planned by OPM, the effect of which will be to eliminate the difficulties which have been restricting expansion of production and refining facilities.

Tanker Shortage . . .

Prospects are that the Japanese war will create another shortage of tankers, such as made it so difficult to carry sufficient oil to the East Coast of the United States during the past summer.

Now that the Battle of the Pacific is underway, large quantities of oil necessarily must be carried to military and naval forces thousands of miles from home. Because of a deficiency of tankers on the Pacific Coast, it appears that tankships in service elsewhere must be drawn upon heavily to perform this duty. Due to the greater distances involved, a larger number of boats may have to be taken out of domestic service than when some 80 ships were loaned to Great Britain last summer.

Fortunately the tanker position of the United States has improved materially in the past six weeks as a result of the British returning the boats loaned to them in early summer and launching of new vessels at substantially speeded up rates. Furthermore, several other improvements have been made in the transportation facilities between the Gulf Coast oil fields and the heavy consuming Eastern industrial region. Tankers are permitted to carry larger loads than during the first month of the past East Coast shortage. Three important new pipe lines have been completed: the Montreal-Portland system, the Plantation line and the Southeastern line. In addition, previously existing lines have been expanded, and facilities for handling rail shipments have been installed. Therefore, even if more tankers should be diverted from East Coast services, the situation along the Atlantic may not be as severe as during the summer. Moreover, stocks of petroleum in the East have increased materially in recent months.

Drums in Spotlight . . .

Marketing departments of oil companies are chasing steel drums from repose, and putting them to wider and faster use as defense needs grow. No drums get a chance to rest these days. Thus, the cycle of history has turned the spotlight back on barrels in the petroleum industry, which moved all its products in such containers prior to 1870.

The reason is that metal formerly used in making drums now is needed for national defense purposes. At the same time military forces are seeking increased shipments of petroleum products in drums, because of the ease of handling in remote areas. Since few additional drums can be obtained, the present supply must work harder.

This situation has caused something of a boom in the cooperage business with the demand for more and more wooden barrels. It takes plenty of 50-gallon barrels to meet the needs of an industry which measures in billions of gallons.

Ickes Gives Industry War Assignment

In reply to a letter from the publisher of THE OIL WEEKLY, the Petroleum Coordinator gives data on production needs for 1942 — Discusses number of wells to be drilled — Calls for increased operating efficiency — Points out need for exploration campaign — Discusses above-ground stock situation — refers to refining and transportation problems — Tells of work being done on priorities and stresses need for best utilization of materials

REPLYING to a letter dated November 12 addressed to the Petroleum Coordinator by Ray L. Dudley, publisher of THE OIL WEEKLY, *and published in* THE OIL WEEKLY *of November 17, Secretary Harold L. Ickes, Petroleum Coordinator, has answered the questions propounded him and in an earnest, straightforward manner, has set forth the "assignment of duty" for the industry, requested of him.*

The letter was received too late in the week to allow comment on it in this issue, but comment will be made on it in the December 22 issue. There is time available, however, for THE OIL WEEKLY *to say that the Petroleum Coordinator has given a very frank, and cooperative reply to a letter which set out questions current in the oil industry, and, to add that* THE OIL WEEKLY *accepts the assignment given it by the Petroleum Coordinator which assignment it will fill to the topmost limits of its ability.*

The letter from Coordinator Ickes follows:

December 9, 1941.

Mr. Ray L. Dudley, Publisher,
The Oil Weekly,
Houston, Texas.

My Dear Mr. Dudley:

It is a pleasure to answer your friendly and encouraging letter of November 12 in the same spirit in which it was written. I want you to know that as long as I am Petroleum Coordinator I will always welcome frank inquiries and helpful suggestions of the type contained in your letter. I want to thank you, too, for the pledge of cooperation by "The Oil Weekly." In return, I hope that you and the petroleum industry will always find the Office of the Petroleum Coordinator more than willing to meet you halfway in mutual cooperation.

The Industry's War Problem

The specific questions asked in your letter are of great importance to the petroleum industry and to those military and civilian consumers who depend upon oil. I know you will be interested to learn that the questions you ask were among the first that I asked of members of my staff, and placing ourselves in a position to answer those questions has occupied a large part of the time of this office and of the various petroleum industry committees. Your letter arrives while the data necessary to the answers are being assembled and I am glad at this time not only to agree with you that it is high time that these questions are answered, but also to offer preliminary answers to some of the questions.

As your letter suggests, I do know something about the difficulties of curtailing the non-defense use of petroleum products in such a way as not to impair civilian morale, and it is my earnest hope that the demands of this emergency will not increase to the point where the productive facilities of the petroleum industry might prove incapable of meeting both defense demands and civilian requirements.

A Survey of Present Productivity

You ask, "Isn't it high time to find out just how much additional oil can be produced without adversely affecting ultimate recovery, simply by 'opening the valves'? Isn't it time to find out where this oil can be produced?"

This is one of the questions that for months has been receiving the attention of my staff and the District Production Committees, and it is becoming clear that the extra productivity of this country is centered chiefly in those districts that have consistently practiced conservation. Those fields which have been giving their all in the interests of short-term pay outs and quick profits now have little to offer our defense program except requests for material and equipment with which to salvage part of the oil which their past practices have rendered difficult to produce when it is needed.

I am intensely and vitally interested in the quantity of oil that our oil fields can efficiently produce two years from now, after having produced at not less than those rates during the interim, rather than in what these fields can produce this month. We know where we stand. We can only guess what to expect. Consequently, each flush or semi-flush field must be operated so as to yield, under proper conservation practices, the full production which it can supply throughout the emergency. Otherwise, we would have to call upon the geologists and wildcatters for accomplishments which might prove impossible and, at the same time, require an excessive use of critical materials.

You realize, of course, that much of the unconcern with which the public and many officials view the plight of the petroleum industry in its clamor for materials and supplies is due to a widespread

HAROLD L. ICKES
"I sincerely believe that we are busy in a big way"

belief, industry-nurtured, that the petroleum industry could, without qualification, meet any possible demand upon it. Such are the fruits of the bountiful "potential" trees which have thrived vigorously in many states. Because the petroleum industry has been "oversold" to the public you will appreciate the desirability of a gradual rather than an abrupt correction, lest the reaction be as harmful as the action itself. For this reason, it is hoped that the regulatory bodies of the various oil producing states may review and modify, if not abandon, the use and application of the term "potential" in its present numerous fallacious connotations, most of which have no reasonable relation to the ultimate yield of a property or field.

Future Unpredictable—Must Be Ready

The most difficult question you ask is, "Isn't it time to present the industry with some concrete figures as to what will be expected of it in the way of daily production of crude oil—and to find out how much drilling will be necessary to do this and to place the crude reserves at a desirable figure?" This can be answered only by preliminary, tentative estimates which doubtless will have to be revised periodically.

The quantity of crude oil required by our own defense effort and by our world-wide obligations is unpredictable because of its dependence upon military successes and failures. The petroleum industry therefore must always remain "at the ready" to give its utmost. I need only remind you that the Bureau of Mines estimate of the December 1941 demand for crude oil is 4,139,000 barrels daily, a truly astounding figure, which is an increase of 17 percent over the December 1940 demand of 3,562,500 barrels daily. A similar percentage increase, should it occur, would bring December 1942 demand to a point which is beyond the capacity of our presently known oil fields to produce on a sustained efficient basis. Although your question did not include an inquiry as to whether we could transport and refine such a quantity of crude oil, that, too, is a very grave problem.

My expressed concern over the petroleum reserves of this Nation has been pointed toward a time when we will have exhausted our resources in advance of the rest of the world and, therefore, will have to depend upon costly substitutes or look to imports to fulfill our requirements. Although the time must inevitably come when year after year the production of crude oil will exceed the new reserves discovered, as is now the case with the depleted states of the Appalachian area, I do not believe that such a time has yet come for the United States as a whole. Every year in which our discoveries of oil are less than the amount produced finds our task of regaining position much more difficult. This task of maintaining known reserves at a desirable ratio to current annual rate of consumption now is doubly difficult because the more and more elusive reserves must be found in even greater volume to attempt a maintenance of the reserve-consumption ratio in the face of a skyrocketing increase in crude oil demand.

This task will continue long after the present emergency has passed. If our sustained productivity is allowed to diminish during this critical period, with our Nation now under dastardly attacks throughout the tremendous areas of the Pacific, we will have even more serious problems confronting us during the post-war reconstruction period. Then, as now, we will face the necessity of operating our fields at the rate of maximum efficiency while continuing to bring into sight additional reserves to meet equally important demands.

Drill to Maintain Output and Reserves

With respect to the volume of drilling probably required in the future no precise answer can be given. The recent rate of drilling activity approximates 30,000 wells annually and, if they continue to show the productivity witnessed in the recent past, that might suffice for both the necessary amount of daily production and the proving up of sufficient available reserves, although it is possible that 15,000 above-average wells would suffice, or, if below average, 45,000 wells might be necessary. We must remember, too, that 1942 drilling must also prove sufficient additional areas for 1943 drilling.

Use Available Supplies Efficiently

Your next question, "Then, when the amount of necessary drilling has been calculated, isn't it time to get busy in a big way and see to it that the industry has the necessary supplies with which to do the job?" enables me to say that I sincerely believe we are "busy in a big way" in helping the petroleum industry get the tools it needs to do the job. A considerable portion of the staff of this office is kept very busy in its duty of acting as an end product commodity section for the Office of Pro-

duction Management. Through the Materials Section of this office are cleared expeditiously and efficiently the multitude of applications for preference rating which require appraisal and recommendation by this office before consideration and action by the Office of Production Management. We have been engaged continuously in the task of improving and expediting this process, and we intend to keep at it.

In addition to this service to the petroleum industry, this office has specifically requested the Supply Priorities and Allocation Board to allot the petroleum industry 5,400,000 tons of steel and other materials to meet its needs for 1942. You will note that it is expected that oil will cost about seven pounds of steel per barrel in 1942. If less than the requested quantity of steel is allocated in 1942, the industry will nevertheless be expected to do all that is required of it. This will mean the drilling of fewer but better wells and the construction of fewer but more efficient pipe lines and refineries. In connection with our efforts to get the most oil for each pound of steel, we find that the most difficult part of the job is to make people realize that this emergency really affects them. Too many people in the oil business are still trying to conduct business as usual, particularly in the producing and refining divisions.

Increase Stocks in Ratio to Demand

The suggestion you offer when you ask, "Isn't it time to determine whether or not the crude stocks of the country are at their proper level—at their proper level at the proper points?" is now in the hands of the District Industry Committees for consideration and recommendation. Our preliminary studies, as well as the opinions of those who actually hold the petroleum stocks, have convinced us that aboveground stocks of petroleum, like underground reserves, are too low in proportion to current demand. These studies also make it apparent that different districts have different stock requirements as expressed in terms of "days supply." An early report is expected from the District Committees, and an announcement will be made immediately thereafter. In the meantime, you will note that the production which will result from the forecast of December demand will likely interrupt the steady shrinkage of present stocks. In this connection it is evident that although the consumed stocks may have come from many states, only a few states will be able to assist in replenishing those stocks.

Unnecessary Wells Biggest Waste

As your last question you propound, "If there is physical waste in the oil industry which can be cured during this emergency, why not tell the industry specifically where such waste is occurring?" You know, as I do, that whenever an unnecessary well is drilled, an unnecessary pipe line or refinery constructed, there is actual physical waste of the irrecoverable materials that go into such drilling or such construction. Unnecessary wells are perhaps the worst offenders, because, as experience has amply demonstrated time and again, in addition to the amount of steel that is permanently lost when casing is cemented in such wells, their existence almost inevitably leads to inefficient operation of fields at excessive rates of production, with attendant underground loss of recoverable oil. I realize, also, that the waste of a commodity is frequently inversely proportional to its value, which fact may account for the continuing waste of large volumes of natural gas in some areas, the value of which for increasing oil recovery may not yet be fully appreciated.

I am glad to note that during the past ten years the actual physical waste of oil resulting from inefficient development and production operations has declined steadily as the industry in general, but with some notable exceptions, has become more aware of its responsibilities. Although possibly not actually permanently lost or destroyed, the quantities of oil that inefficient production practices are continuing to leave underground in several states and areas must be considered lost or wasted, until much higher prices for petroleum warrant the application of expensive secondary recovery methods.

The Industry's Assignment

You ask for an assignment for the petroleum industry. I have indicated the scope of such an assignment in the foregoing paragraphs, but to recapitulate, here is what is expected of the petroleum industry:

1. **Produce at least 1,500,000,000 barrels of crude oil during 1942, if that quantity can be supplied without impairing the ability to sustain the necessary production during the emergency.**
2. **Drill a sufficient number of wells, efficiently spaced, to furnish that amount of oil next year and to prove up sufficient reserves to furnish at least that amount during the following year.**
3. **Operate all wells so as to conserve reservoir pressure to the end that the greatest practicable ultimate recovery will be attained at the lowest possible cost, with minimum expenditures required to provide artificial energy to effect production.**
4. **Conduct an exploration campaign that will result in the discovery of new supplies adequate to maintain a comfortable ratio between reserves and current annual consumption.**
5. **Maintain surface stocks of crude oil at adequate levels with respect to refinery requirements for the various grades and qualities of products as well as stocks of the products sufficient to protect against any unusual demand that may arise.**
6. **Make the most efficient use possible of the limited supplies of material and equipment to meet the demand upon all branches of the industry, finding, producing, refining, transporting and marketing.**

I want to thank you again for your concise letter, raising such important questions. I hope that you find my answers helpful and indicative of the extensive studies which we have been prosecuting for months, with the able assistance of the experienced oil men now serving on our District Committees for National Defense. And now may I look to you, and other members of the petroleum press, to keep your readers fully informed of our activities so that we may have their cooperation and support as well as yours?

Sincerely yours,

(SIGNED) HAROLD L. ICKES,
Petroleum Coordinator for National Defense.

Washington Roundup

OPC acts to put industry on all-out basis . . . Ickes due to get more authority under set-up . . . Agency may be given power to set allowables . . . New petroleum council discusses problems

By B. F. LINZ, Washington Correspondent

WITH the United States actually engaged in a "shooting" war with the Axis powers, OPC officials last week took prompt steps to put the oil industry on an all-out war basis, with indications that the authority of Coordinator Harold L. Ickes will be materially extended in the near future to enable him to direct all activities of the industry along the lines of the administration's defense program.

The first step in this direction may be the vesting in OPC of authority directly to set the allowable production for every field in every producing state, which would enable the coordinator to restrain any state from attempting to take advantage of the current situation by producing at a rate which may be harmful to its potential.

To meet the needs of war, greatly increased crude oil production will be necessary, and OPC experts now are attempting to determine how far output can be boosted without quick water infiltration or other evils and then, after that has been ascertained, how much additional oil can be handled by the refineries.

It is realized that production cannot be maintained indefinitely at a high rate and also that while refineries on the whole are said to be operating at about 95 percent of capacity, many of them in fact are working full capacity. The problem, accordingly, is to find out how much increase the fields can stand and then how to get the oil from certain fields to definite refineries which are in position to process it.

By a turn of the wheel, the petroleum industry council, formed as the capstone of the OPC defense organization, found itself at its very first meeting literally a war council as the coordinator, without delay, laid before it a number of problems of military importance. Following its organization meeting, the members of the executive committee were called into emergency session December 11 to discuss subjects which were not disclosed other than as being of "grave military importance."

Indications that the public would have to curtail its consumption of gasoline were seen in meetings during the week at which the tetraethyl-lead and aviation-fuel problems were discussed. Opposition was voiced to a reduction in the use of lead but there were no indications that OPM would abandon

The first meeting of the newly created Petroleum Industry Council for National Defense was held in Washington. Besides perfecting its organization for better functioning, it delved into problems of the industry that are of military importance.

its plan to cut consumption because of the shortage of lead and chemicals.

The aviation-gasoline conference paved the way for quick expansion of 100-octane fuel which may involve the conversion of motor-fuel refineries, thus reducing the amount of gasoline available for general distribution.

The first break in the log-jam which has halted increases in the prices for crude oil came December 11 when OPA Administrator Leon Henderson narrowed the spread between North Texas and Oklahoma. Henderson warned that this could not be considered as a precedent and that action on price increases in other areas would be based upon studies now being made.

The department of justice has given its approval to plans for handling California production in a letter from Attorney General Francis Biddle to the Coordinator.

In his letter, the Attorney General said it would not consider in violation of the anti-trust laws any action taken by the industry at the request of the Coordinator under any plan through which the latter sought to regulate storage, development or other phases of oil production.

Originally, it was reported, the Department of Justice desired to condition its approval of the California plan upon the fixing of allowable production by Ickes but, it is said, this was dropped when it was indicated that the Coordinator would be given authority to control output nationally, if necessary.

Developments to watch: Curtailment of civilian gasoline consumption; sharp increases in allowable for crude production; diversion of refineries from automobile to high-octane gasoline; expansion of Ickes' authority; limitation of tetraethyl lead use; encouragement of extensive wildcatting in an effort to develop reserves against the war drain of existing fields, estimated at an additional 900,000,000 barrels in 1942.

Control

In a sweeping order which provided for the pooling or exchange of crude, base stocks, blending agents, processes and patents, as well as production, transportation and refining facilities, if necessary, Coordinator Ickes on December 13 told the district refining committees immediately to undertake complete surveys of the aviation gasoline situation and draft plans to increase production to the maximum in the shortest possible time.

"On December 7, 1941, the government of the empire of Japan declared war upon the United States," Ickes declared in his order. "It is essential, in the national interest, that the supplies of all grades of aviation gasoline for military defense and essential civilian uses be increased immediately to the maximum."

The surveys, he instructed, are to include, but not be limited to, information concerning the existence, location and availability of all grades of aviation type crudes, base stocks, blending agents, manufacturing patents and processes, capacity of existing aviation gasoline production facilities and the possibilities of expansion thereof and the possibilities of the conversion thereto of facilities not now employed for such purposes."

The plans to be drafted, it was disclosed, may provide for "the allocation, exchange, license, pooling, loan, sale or lease of crude oil, base stocks, blending agents, processes and patents, and production, transportation and refining facilities—whenever and to whatever extent may be necessary to facilitate the maximum production of all grades of aviation gasoline or to reduce the time required to produce such gasoline."

Further, Ickes said, plans may provide for such action wherever necessary to avoid inequities among the various affected units of industry.

"And, specifically, may provide for a reduction in any locality or area of the quality and octane rating of motor so far as consistent with defense or essential civilian needs where such action is made necessary because of the operation of any plan."

Ickes ordered that within 30 days full statements must be filed with the OPC of the terms of existing contracts and agreements for the production, storage, use, sale or other disposition of all grades of aviation gasoline and all grades of base stocks and blending agents. It was further ordered that, except under any plan approved by the OPC, no action shall be taken by any producer or refinery of aviation gasoline, base stocks or blending agents with respect to production, storage, use, sale or other disposition without first reporting to the OPC.

Aviation Gasoline

Meeting with Deputy Coordinator Davies and other officials of OPC, War and Navy Departments, aviation gasoline refiners on December 10 developed a program for quick expansion of 100-octane production to meet the military needs of actual war.

The fullest possible use of existing productive capacity and speedy completion of additional facilites was mapped out after military officials detailed the needs of the two services for gasoline.

Full reports were received of present refining capacity, the storage position and the expected requirements for a war in which the United States will fight on at least two fronts and later, perhaps, on several.

Steps are to be taken to put all present refining facilities on a full-time, full-capacity schedule and to rush to completion additional facilities now under construction or planned.

Present capacity provides about 44,000 barrels of aviation gasoline daily, and plans of OPC called for expansion to 120,000 barrels during the coming year, but it is believed the latter may be achieved in less time and, also, that further expansion of production should be provided.

To secure quick expansion of output, some existing gasoline refineries will be revamped for the production of 100-octane aviation fuel and production of the necessary crudes will be expanded by an increase in allowables in the producing states.

Council Commissioned

Given the approval of the Department of Justice for its plan to finance its operations by contributions from the industry and with its activities given clearance so far as anti-trust prosecutions are concerned, the Petroleum Industry Council for National Defense—the war cabinet of the industry—was commissioned by Coordinator Ickes December 13 immediately to initiate studies and make plans for wartime operations. Ickes "recommendation" outlining the scope of the council's work was issued following receipt of a letter from the Department of Justice ap-

proving the program which had been outlined by the council and OPC officials at the former's organization meeting December 8 and which was submitted to department officials by a special committee appointed for the purpose.

In a message to the members of the group, accompanying his recommendation, the coordinator explained that:

"The purpose of the council is to mobilize most effectively the resources and abilities of the petroleum industry to deal with the emergency conditions under which the industry must operate and to provide a competent, responsible and representative body equipped and authorized both to advise the petroleum coordinator for national defense with respect to the petroleum industry and to carry into effect immediately measures affecting that industry recommended by the Petroleum Coordinator for National Defense as essential to the national defense.

"The resolution of December 8, 1941, of the Congress of the United States declaring that a state of war exists between the imperial Japanese government and the government and the people of the United States has made it vital to the national welfare that the Petroleum Industry Council for National Defense be enabled to act swiftly and effectively to advise the petroleum coordinator with respect to matters affecting the petroleum industry and to carry into effect recommendations of the coordinator," he declared.

Ickes specific recommendations to the council were as follows:

Duties and Functions. The Petroleum Industry Council shall (A) advise or inform the Petroleum Coordinator for National Defense with respect to any matter relating to the petroleum industry submitted to it by the petroleum coordinator for advice or information;

(B) Raise and consider on its own motion and, if deemed necessary or desirable, propose to the Petroleum Coordinator for National Defense any action relating to the proper coordination of the petroleum industry for defense as indicated by the President of the United States in his letter of May 28, 1941, establishing the Office of Petroleum Coordinator for National Defense;

(C) Take any action or return any duty or function specified in any formal recommendation of the Petroleum Coordinator for National Defense which has been duly submitted to the attorney general and entered in the federal register, or in any approved plan effective under such recommendation.

Surveys and Investigations. In accomplishing the purposes and objectives of the Petroleum Industry Council for National Defense, the Petroleum Industry Council shall obtain, compile and analyze all pertinent and available facts, figures and other data with respect to any matter which may properly be before it. In this connection the council is authorized:

(A) To direct such inquiries and questionnaires to such companies, organizations, or persons as may be necessary or appropriate.

(B) To ask and receive expert assistance from any company, organization, or person.

(C) To afford any interested or affected persons an opportunity to present their views.

(D) To consult with any of the committees or temporary or permanent subcommittees established by or under the authority of the Petroleum Coordinator for National Defense, and with any appropriate representative of the Office of Petroleum Coordinator for National Defense.

Plans. The Petroleum Industry Council for National Defense, after compiling and analyzing all available and pertinent data with respect to any matter which may be before it, shall, if the council deems it necessary or desirable, formulate and reduce to writing such specific plan or proposal as shall seem necessary or appropriate and shall submit it, with a statement of facts and reasons to the Petroleum Coordinator for National Defense, Washington, D. C.

Organization of Council. The Petroleum Industry Council for National Defense shall select an executive committee which shall have all the duties, functions and authorities of the council whenever the council is not in session.

The Petroleum Industry Council for National Defense may maintain such staff and employ such persons as it finds necessary for carrying out its duties, responsibilities and functions under this recommendation, and may appoint such committees as it deems necessary for investigation and report on specific problems. Minutes shall be kept of all meetings of the council and of the executive committee and two copies thereof shall be filed in the Office of the Petroleum Coordinator for National Defense.

Expenses and Contributions. Operating expenses heretofore or hereafter incurred or paid for the Petroleum Industry Council for National Defense shall be met from a fund to which contributions may be made by companies or individuals engaged in the petroleum industry upon solicitation by the council.

As Ickes spurred the council to begin its work immediately, William R. Boyd, chairman of the group disclosed that its first attack will be against waste and made public a resolution of the executive committee declaring that "the emergency facing the country requires the prevention of all waste of petroleum."

Boyd said that the committee already had initiated consideration of the problem, appointing a subcommittee to study the character and nature of preventable waste and to report appropriate measures "to publicize the necessity of a policy of rational conservation of petroleum and its products."

The campaign against waste will be taken to the consuming public, whose cooperation will be sought in conserving oil and gasoline supplies which are expected to be less plentiful as the program for military production gets under way.

Council Organized

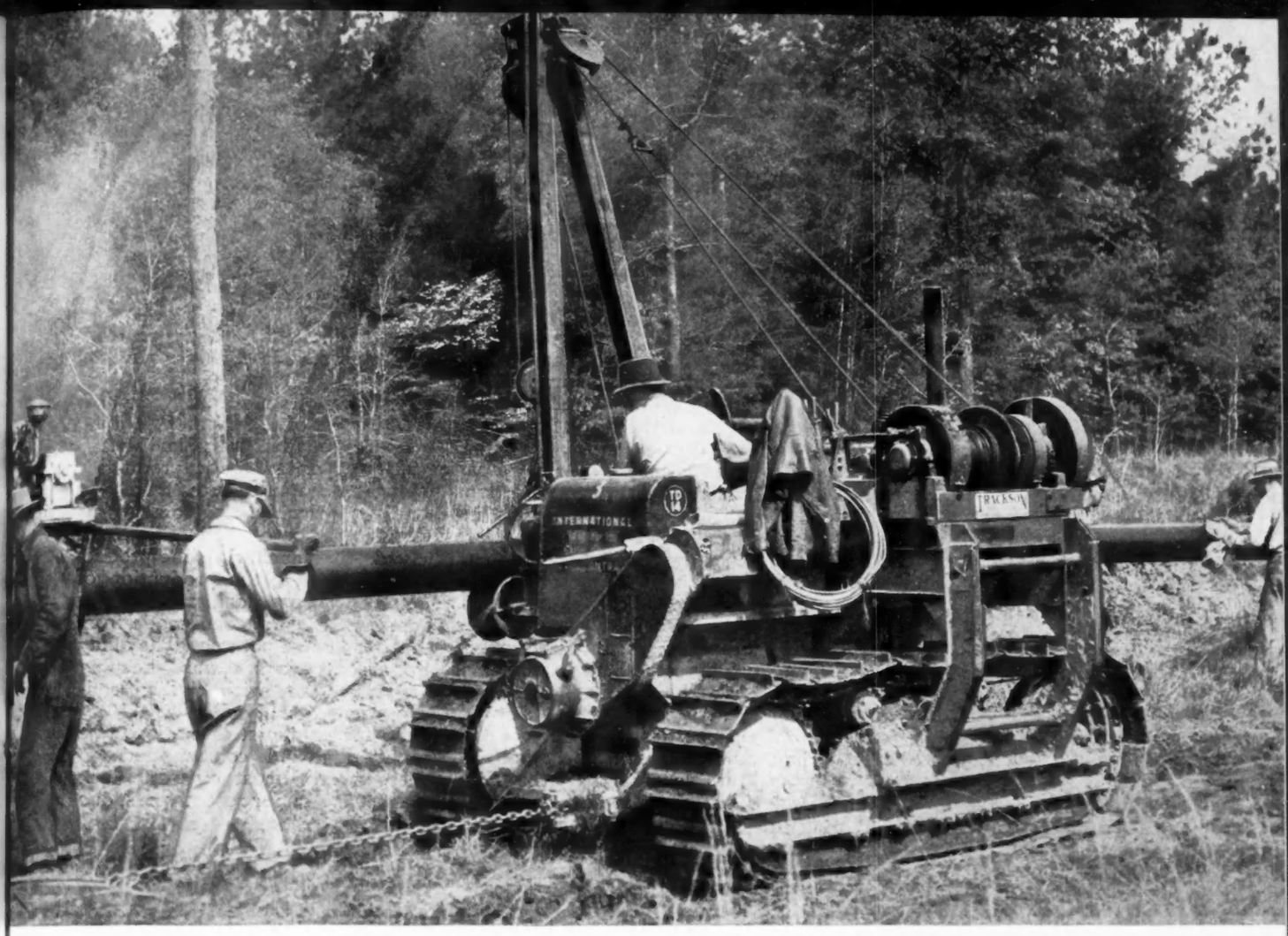
The first civilian activity to be geared to actual war, organization of the Petroleum Industry Council for National Defense was perfected December 8 while the country still was reeling under the shock of Japanese "cut-throat" attacks.

Called November 29 by Secretary Ickes with a view to completing the defense coordination set-up, more than 60 representatives of all branches of the industry found themselves confronted with problems of war, accepted the challenge and plunged immediately into discussion of questions of such military importance that some of the subjects considered were not even named.

W. R. Boyd, Jr., president of the American Petroleum Institute, was elected chairman of the council, and a 25-member executive committee was set up, as follows:

John A. Brown, president of Socony-Vacuum Oil Company, New York; Frank Buttram, president of the Independent Petroleum Association, Oklahoma City; H. D. Collier, president of Standard Oil Company of California, San Francisco; O. D. Donnell, president of The Ohio Oil Company, Findlay, Ohio; J. Frank Drake, president of Gulf Oil Corporation, Pittsburgh; W. S. Farish, president of Standard Oil

[*Continued on page 50*]



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INTERNATIONAL Industrial Power

Desire for Oil Prompted Japan's Surprise Attack

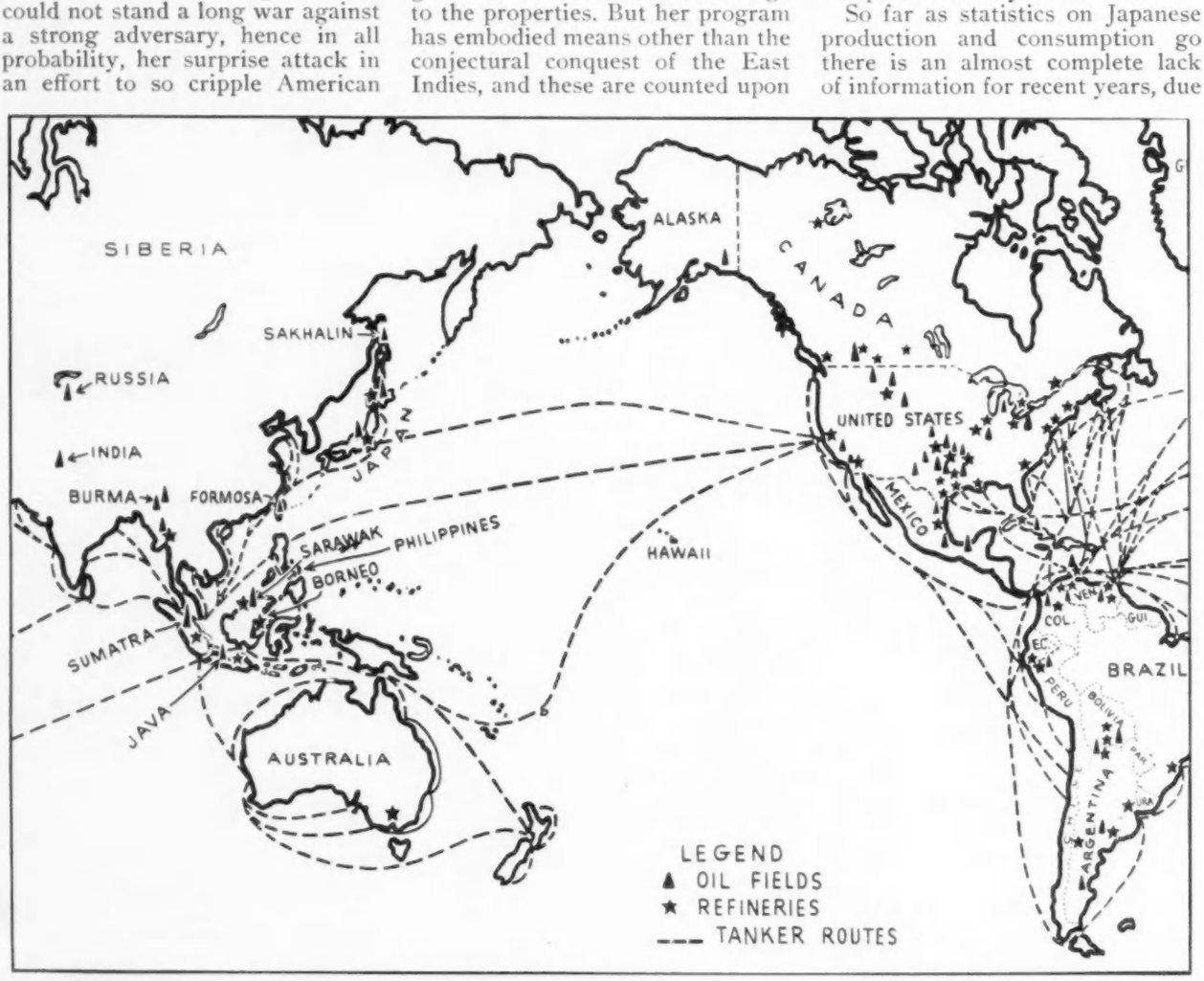
JAPAN's unprovoked attack on the United States may be as much a desperate attempt to get oil as an effort to insure the "new order" for Asia, in the opinion of some competent observers. Nearest of the world's great oil reservoirs is the Dutch East Indies with their 60,000,000-barrel-a-year output. But between Japan and the Indies are the Philippine Islands, outpost of the United States, and a serious threat to any Indies invasion attempt. The Japanese had certain knowledge that an attack on the Dutch East Indies would bring down upon them the wrath of the United States and England. She could not stand a long war against a strong adversary, hence in all probability, her surprise attack in an effort to so cripple American and British strength that the Dutch East Indies would be an easier prey.

Japan has staked all in an effort to win quickly the oil necessary for the success of her plan for a new order in Asia.

Deficient in petroleum, Japan necessarily had to lay out plans for obtaining the oil that is indispensable in modern war before attacking the United States and Great Britain in the Far East on December 7. And calculate she has. Japan obviously hopes to take over the Netherlands East Indies, which would fully solve her oil problems, if wells and refineries there were gained without too much damage to the properties. But her program has embodied means other than the conjectural conquest of the East Indies, and these are counted upon to provide military requirements of oil in case the Indies campaign fails.

Storing oil in recent years has been a part of the solution, and the plans also apparently laid heavy emphasis on synthetic production of petroleum substitutes from coal and lignite, while also contemplating production of shale oil in Manchoukuo (Manchuria), the production of benzol, the production of retort-tar from coal, and mixing into gasoline of alcohol made from sugar cane and potatoes. They may go a long ways toward keeping Japan at war, with civilian consumption virtually eliminated.

So far as statistics on Japanese production and consumption go there is an almost complete lack of information for recent years, due



Most coveted immediate achievement for the Japanese would be seizure of the Netherlands East Indies oil fields. But barring such a campaign was the United States and Great Britain with their military bases at Hawaii, the Philippines and Singapore—hence the surprise attack on these objectives in an effort to so cripple them that they would not stand in the way.

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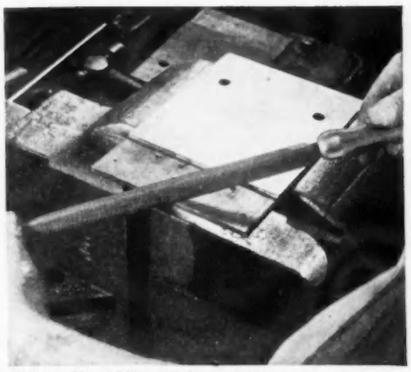

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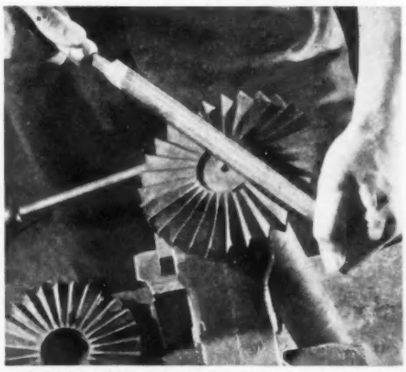
BRASS FILE. Long-angle overcut and short upcut teeth enable file to break up the soft filings, clear itself of chips and keep it from running off the work. Flat and Half-round shapes.



DIE-CAST FILE. Designed mainly for working on small die-cast parts consisting of combinations of aluminum, zinc, magnesium; etc. Has extra-strong teeth on edges. Mill and Half-round shapes.

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National defense makes it vitally necessary to "keep the oil flowing." Therefore, the efficiency of your equipment should never suffer from a lack of files—or from not having *The right file for the job.*

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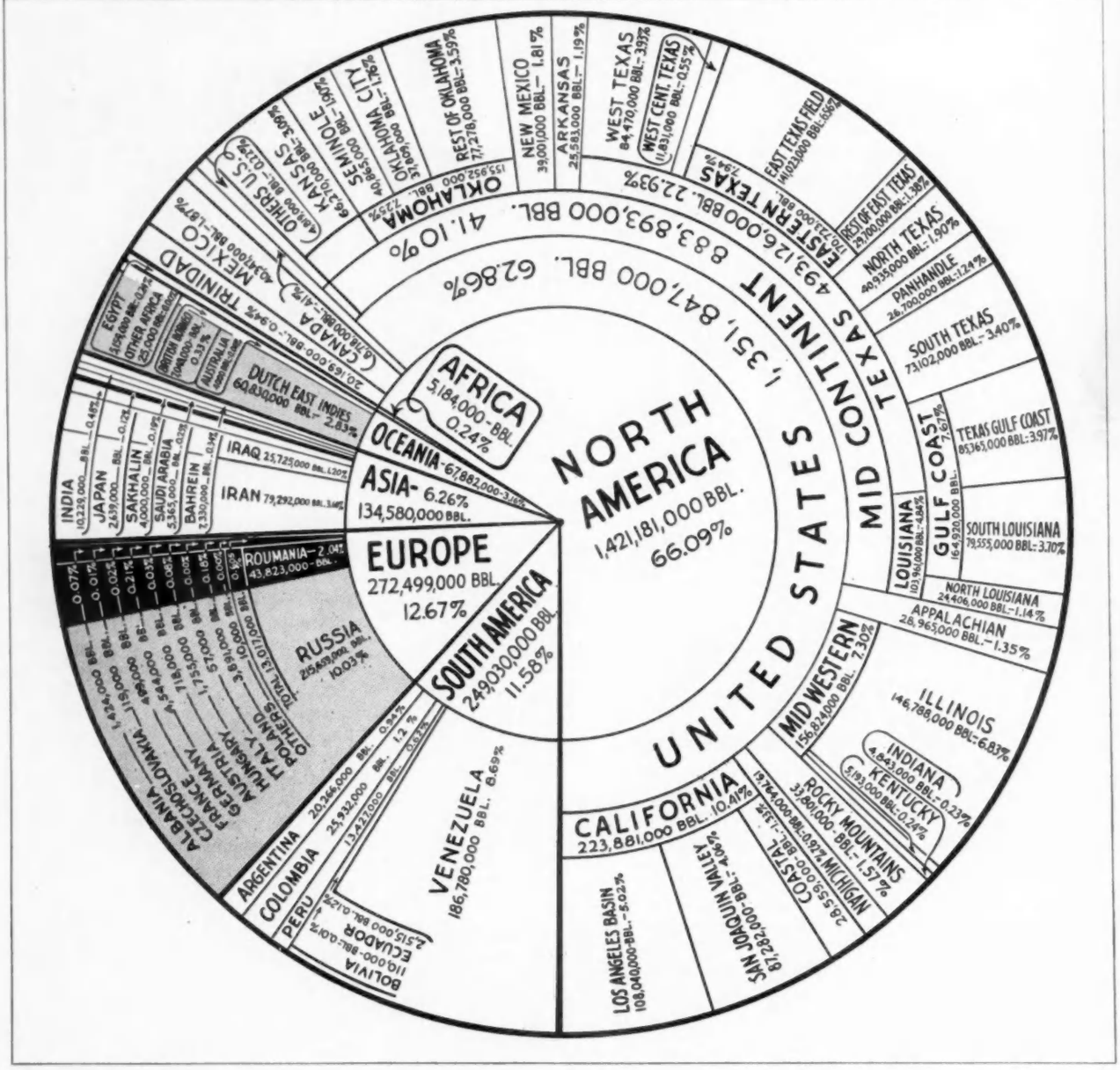
BLACK DIAMOND TRADE MARK

Crude production in hands of Axis powers (shown in black) are small, therefore they seek Russian and East Indies oil (shaded) and threaten Iraq and Iran of the Near East.



to the great secrecy with which Japan has surrounded her oil situation since about 1936. The best available estimates place her 1940 consumption for civilian purposes at slightly in excess of 25,000,000 barrels of oil annually, and based on earlier figures her consumption for military purposes would be about another 11,000,000 barrels. Now that she is engaged in an intensive war with the United States and Britain, military use obviously will shoot up sharply.

Toward meeting these wartime requirements, Japan definitely will have nearly 3,000,000 barrels of natural crude oil production. In addition to production on the island proper and on Formosa (Taiwan), Japan has a half interest in the Sakhalin Island output with the Russians, and some sources state this amounts to another 1,500,000 barrels annually. While heretofore this has been a dependable source, it may have an altered status as the war unfolds.

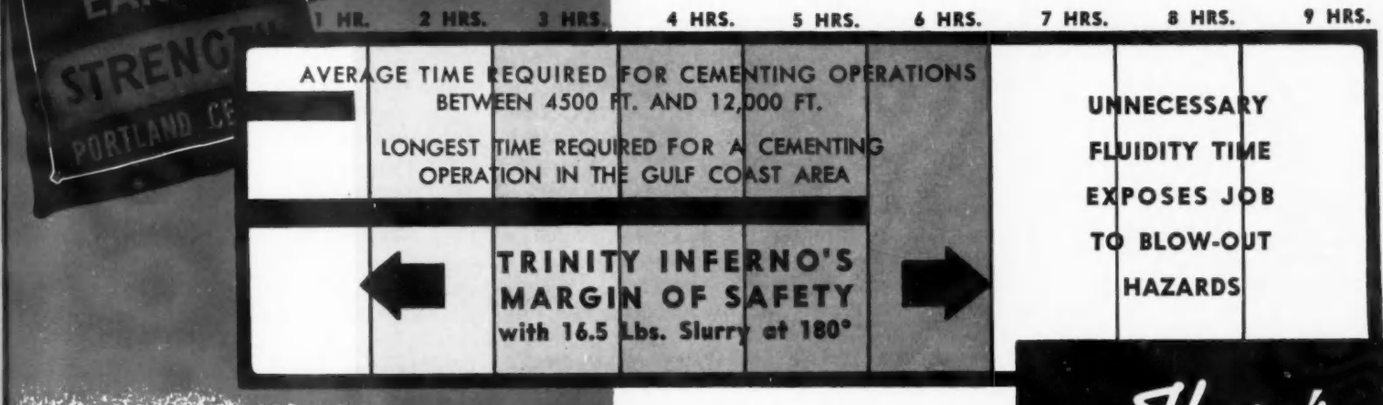
The remainder of the Japanese requirements now must come, if not by conquest, from production of petroleum substitutes and from storage, for she is completely shut off from imports upon which she formerly depended for an estimated 90 percent of her oil before purchases were limited by the United States in 1940. The United States is credited with furnishing 65 percent of her imports, the Dutch East Indies with 25 percent and Mexico and Venezuela with some small additional quantities.

It is indicated that Japan has made material expansion recently in development of synthetic petroleum. About 20 plants for this purpose are said to be completed or under construction, with German experts assisting. They will operate on coal and lignite from de-

TRINITY *Inferno* INCREASES FLUIDITY TIME TO PROVIDE EVEN GREATER SAFETY FACTOR

Trinity Portland Cement Company, one of the pioneers in slow-setting cement, has combined the research of its technical staff with the research and experience of Halliburton Oil Well Cementing Company to perfect an even better Inferno. The same high strength, dependable uniformity and easier pumpability which have always characterized Inferno have been retained, and fluidity has been increased to six hours with 16.5 slurry at 180°. Trinity Inferno exceeds the requirements for any deep well job. For cementing casing, squeeze cementing, and recementing it provides an ample margin of safety, but does not expose the job to hazards created by remaining fluid for an unnecessarily long time after the cementing operation has been completed. Trinity Inferno has the ideal fluid time, *plus* a protecting factor of safety for unforeseen delays, with minimum hardening time after the cement is placed. Cementing operations between 4500 ft. to 12,000 ft. show the average over-all time was 54 minutes. Records show that the longest time required for a cementing operation in the Gulf Coast area was 300 minutes. These figures are from the deep well cementing operations on the Gulf Coast for the past five years—and are the best evidence that Inferno's fluidity is right. Inferno's higher strength, easier pumpability, and greater uniformity have been generally recognized for the past five years.

These advantages, plus the new scientifically controlled fluidity time, give you maximum assurance of successful deep well cement jobs. If you're looking for a cement to handle the roughest, toughest jobs—put your money on Inferno.


1 HR.
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posits in Japan proper, Sakhalin, Manchuria, and northern conquered China. Substitutes and materials for extending the supply of petroleum also are counted upon. These include the production of shale oil in Manchuria, the production of benzol, the production of retort-tar from coal, and the compulsory admixture since early 1940 of 10 percent of alcohol with gasoline. It is not known what capacities these units have today, but as early as 1938, since which time they have been materially enlarged, substitutes were credited with filling from 15 to 20 percent of Japan's requirements.

Confronted first by the financial difficulty of paying for the oil she imported and later by restrictions, the Japanese government some years ago adopted a policy of providing as much as possible of her military needs by a reduction of civilian consumption. As an example of this effort, it is estimated that her non-military consumption has been cut more than 8,000,000 barrels a year since 1937.

With her war in China using up great quantities of oil, and at the same time foreseeing entanglement with other countries, Japan is known to have attempted to build up a storage reserve capable of maintaining her military machine for two years. No figures are available on how deeply she had to dip into those reserves after the United States, and later the Dutch East Indies and Mexico restricted her purchases, but it is generally believed that she does not today have a two-year supply in reserve.

That Japan has been able to go as far as she has with the oil available to her has been due largely to the fact that her military planes do not use the same high-octane fuel as do those of the United States, or else she has developed means of rerunning or in some way "doping up" the low-grade gasoline she purchased abroad.

Japan today is estimated to have approximately 50 petroleum refineries, of which the individual capacities are not known, but which are probably adequate to manufacture the entire yearly requirements if a sufficient supply of raw materials is forthcoming — but which certainly is not under conditions imposed by the current war. The plants reportedly are quite decentralized and many of them are small. They are situated in all parts of the country.

The initial restrictions on the shipment of oil products to Japan were imposed by Executive Order in July, 1940, when exports of high-octane gasoline and tetraethyl lead were placed under license. This had no great effect on Japan's purchases in this country, and the controls gradually were tightened as she became more and more defiant of Washington's efforts to bring peace in the Pacific.

American representations to the Mexican government resulted in nullifying Japanese efforts to buy large volumes of Mexican oil, and the Dutch East Indies, refusing demands for a larger share of their oil, also finally cut off supplies. Thus Japan was left alone in Asia, faced on all sides with an economic blockade, the most important product of which she was deprived being oil, by now almost literally the lifeblood which kept her going in China.

With her need for refined products increased both by her venture in China and her efforts to build up reserves, Japan in the last two or three years sought to take as much gasoline as possible, it is indicated by such Department of Commerce figures as are available.

Thus, in 1940, Japanese takings of crude oil from this country were but 11,528,086 barrels as compared with 16,086,176 barrels in 1939, but her imports of low-grade motor fuels increased from 408,534 barrels to 2,451,060 barrels. Purchases of high-grade motor fuels in 1940 were 527,651 barrels against 562,230 barrels in 1939. No figures of any importance are available for 1941, since the Department of Commerce discontinued the compilation of all statistics on countries of destination of American exports, as a defense measure.

Other figures show that, in line with an apparent plan to build up military stocks, Japanese imports of American lubricating oils increased nearly 1,500,000 barrels between 1936 and 1940, the latter year showing an increase of some 600,000 barrels over 1939. Her 1940 takings were very close to 3,500,000 barrels.

Imports of residual fuel oil, on the other hand, were cut in half during the five-year period, and in 1940 were but slightly more than 2,000,000 barrels. In 1939, however, large quantities undoubtedly were put in storage, since imports were well over 3,800,000 barrels.

Always a heavy user of gas oil and distillates, Japan in 1940 bought more than 5,000,000 barrels in the United States which, however, was close to 1,000,000 barrels less than she took in 1939. Kerosene imports were cut sharply, only about 375,000 barrels being recorded for 1940, about one third of the 1937 imports.

Netherlands East Indies, fifth-ranking oil producing region of the world, even before hostilities had defenses prepared and the army air force mobilized to await a possible Japanese attack on the refineries and oil fields of these strategically important islands. Preparations have been made to render the oil properties useless in the event they should be seriously endangered.

Netherlands Minister Loudon has declared that all preparations have been made for complete destruction of the properties. Provisions have been made to stop the flow of oil from the wells either by explosives or use of cement. Pipe lines and refineries would be blown up. Once such destruction has been accomplished, it is believed that many months would be required to repair it even if the necessary new equipment were available, which is considered improbable.

Since last July, Japan has been able to obtain little if any oil from the Indies, thanks to action by the Netherlands and British governments. This embargo put an end to an agreement made in May whereby Japan was to have obtained oil at the rate of about 13,000,000 barrels per year. The July action, closely followed by an informal embargo on exports of American oil to Japan, was a serious blow to the Japanese supply system and led to thinly veiled threats that the Indies might be seized. The strong British air and naval forces at Singapore, however, are within easy striking distance of the Indies and are obviously prepared to defend that area if the present crisis leads to an attack on the oil centers.

Netherlands East Indies, with Sumatra the principal production center, is fifth in world oil output, being led by United States, Venezuela, Russia and Iran. Production in the islands in 1940 was about 7,939,000 tons. Standard-Vacuum Oil Company produced 2,083,000 tons, and Shell produced 5,851,000 tons, with the remainder coming from small concerns. About 6,800,000 tons of this production was refined in the East Indies, largely in the Palembang refineries. Since 1940, these plants have been making high-octane aviation gasoline.

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Cooperative Water Disposal Planned for East Texas

BEFORE many months a large cooperative program may solve the increasingly serious problem of how to handle the growing volume of salt water being produced in the East Texas field, by injecting it back into the producing formation and thus checking the decline in reservoir pressure also. Not only would this be the world's largest salt - water - disposal system, but probably the largest cooperative operation of any kind ever undertaken in the industry's history.

At stake is an estimated 200 million to 800 million barrels of oil in ultimate recovery, a threatened increase in lifting cost as declining bottom-hole pressures force additional well on the pump, and possible elimination of legal difficulties arising from disposal of the water by means of surface evaporation pits. The volume of salt water produced in East Texas has increased steadily and rapidly during the past year, and currently the volume is in excess of 400,000 barrels per day.

Organization Plans

During the course of discussion, it developed that the federal government is very much interested in the plan or any other that may possibly result in larger ultimate recoveries. E. DeGolyer, conservation director for the Office of Petroleum Coordinator, stated if the cooperative proposal failed and the State of Texas did not work out some feasible plan, OPC might consider it wise to insist something of this nature be done. The government is interested in saving all the oil possible, and OPC might not permit the waste of such large quantities as are indicated might be lost by continued pressure declines in East Texas, DeGolyer explained.

After several weeks of intensive studies, during which time committees studied legal, engineering and organization problems, plans were submitted to a group of operators in Dallas, December 10. Those present favored some sort of collective disposal, but there were many desiring more detailed data on several phases. Consequently, it was decided that an organization committee will draw up a definite proposal for organizing a stock company and the details of its operation. This prospectus will be mailed to operators in the field.

It is likely that the prospectus will provide for a company capitalized at $4,000,000 of which stock half is to be subscribed at time of organization. The capital stock, as prescribed by law, will either be subscribed within 2 years or the capital stock reduced. The rough plan discussed at the Dallas meeting would have independents subscribe for $330,000 of the stock, major companies for $670,000, with the remaining $1,000,000 to be represented by the value of present water-injection systems operating in the field—provided, of course, that their owners are willing to come into the cooperative program. The company would be profit-sharing, like any ordinary corporation. Lawyers held that such an organization would be legal. The company would drill the necessary additional injection wells, gathering systems and treating plants, and operate them.

So as to create an income for the company to offset its investment and operating expense, and at the same time provide an incentive that will induce operators to inject produced salt water back into the formation, the Texas Railroad Commission on November 20 issued an order that gave a bonus of one additional barrel of oil allowable per day for each 50 barrels of salt water so disposed of. A maximum limit of eight barrels of additional allowable per well was provided.

Because much of the water produced in East Texas is from leases where all the wells are of the marginal class, and therefore cannot produce the bonus allowable, the latter may be transferred to other leases. A difficult problem has been that of where operators own no other leases in the field capable of producing the bonus oil. In such cases, operators are urging that negotiable script be issued, thus other concerns could buy the certificates and produce the oil, or the salt-water-disposal company might even buy it and charge the purchase up as expense if unable to find purchasers.

Investigations to determine the most desirable method of returning East Texas field salt water to the formation led to the formulation of three methods whereby this might be accomplished, each being developed in detail to cover a section of the field which was considered as representative. After dividing the field into sections, choosing as basic boundaries those established as headright surveys, the engineering committee of the East Texas Salt Water Disposal Group selected that portion designated on their map as Section 3-A, which comprises a strip with Kilgore approximately on a median line between northern and southern boundaries, and extending from the easternmost portion of the field westward to the vicinity of the Smith County line.

Working first from close investigation of conditions as developed within this sample or typical section, recommendations were extended to cover the East Texas field, and to provide for a daily salt water volume of in excess of 400,000 barrels per day. Between the three sets of data worked up by the engineering committee, no choice was made, all three plans being submitted for such action as might be taken.

Plan 1

The plan numbered 1 contemplates the development of 23 injection wells outside the area of the field, as well as 5 within the boundaries, added to which would be the acquisition of the 46 plants now in existence. This plan, involving transportation of the salt water to points outside the field area, involves the laying of slightly more than 163 miles of gathering lines, main distribution trunks and wellhead connections. It also requires the building and equipping of 24 pump stations, at an estimated total cost of around $112,000.

Total cost of the plan, without adding the customary flat 10 percent to cover contingencies, would be about $1,698,586 for new construction, pipe, pumping stations and new wells to be used for injection purposes. To this should be added the estimated value of the present individual injecting systems, or $1,250,-

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Summary Cost Estimates—3 Alternate Plans

Col.	ITEM	Plan 1	Plan 2	Plan 3
A.	New Wells	23 outside 5 inside	7 outside 30 inside	34 outside 5 inside
B.	Gathering Lines	641,440 feet $271,080	533,030 feet $224,780	918,850 feet $388,780
C.	Pressure Lines	129,535 feet $153,330	54,020 feet $59,310	190,475 feet $225,600
D.	Injection well interconnection (outside wells only)	78,660 feet $95,174	23,940 feet $28,966	116,280 feet $140,692
E.	Sub Total New Pipe	849,635 feet $519,584	610,990 feet $313,056	1,226,605 feet $757,072
F.	Pump Stations	24 $112,002	12 $54,478	35 $163,856
G.	Sub Total Gathering System Cost	$631,586	$367,534	$918,928
H.	Plant Cost	$509,500	$568,000	$718,500
I.	Injection Wells	$437,500	$463,500	$619,000
J.	Expansion of Present units	$120,000	$120,000	.....
K.	Sub Total New Cost	$1,698,586	$1,519,034	$2,256,428
L.	Est. Value Present Injection System	$1,250,000	$1,250,000	.....
M.	Total Cost	$2,948,586	$2,769,034	$2,256,428
N.	Above Estimates made using combination wood Fibre Tar Pipe and Asbestos Cement pipe. If Asbestos Cement Pipe is used throughout add:	$358,740	$298,135	$514,445
O.	GRAND TOTAL	$3,307,326	$3,067,169	$2,770,873

000. The entire plan, using wood fibre tar pipe, falls just short of three million dollars.

Plan 2

Instead of transporting the salt water to the outside of the field area for return west of the earliest water-oil contact, the second plan contemplates the return of the water through a series of wells predominantly inside the field, 30 wells being within the area and only 7 outside it. This plan offers a reduction in pipe required over Plan 1, only 117 miles of pipe being specified for all needs, and the number of pump stations being reduced to 12. Total cost, including the estimated valuation on existing equipment, absorbs a portion of the saving in pipe-line cost by expending it in the drilling of a larger number of return wells. The estimated total for Plan 2 is $2,769,034.

Plan 3

Since the field already has an extensive network of disposal lines, accounting for a portion of the present daily input of salt water, a third plan, contemplating the continuance of present equipment at its present rate of injection, was also developed. This scheme involves the drilling of 34 wells outside the field and only 5 inside it. The pipe-line footage required by this last project mounts past the million mark, totalling 1,226,605 feet, or over 235 miles. Without incorporating any of the present facilities, this plan involves the building of 35 pumping stations, and a total cost of $2,256,428. Additional investment would be required were present facilities to be taken over by the disposal corporation. A breakdown of the labor costs, separated as to inside and outside of field disposal wells, shows a cost per barrel of salt water returned within the field to be $0.00154, outside the field $0.00142.

A modification of Plan 3 so existing disposal systems could be included seemed to be favored by some of those present at the Dallas meeting, and the program might revolve around this new suggestion.

The engineering committee suggests the acquisition of existing disposal plants on a negotiated basis in which each well might be valued on a capacity basis, plant and gathering system on inventory basis modified by utilization value in the general plan as adopted.

Future investment for expansion of the systems may be predicated upon an approximate figure of $6.25 per barrel of injection capacity needed.

Further recommendations of the engineering committee included one that the Railroad Commission be submitted a proposal whereby wells producing large volumes of water be shut down and their production be allocated to other wells on the lease making smaller percentage of brine.

Details of Treating Plants

The following conclusions drawn and recommended by the engineering committee:

1. Open aeration system is most desirable and adaptable.

2. Assuming a plant capacity of 10,000 barrels per day, the plant would be composed of two settling basins (A and B as shown on accompanying drawing).

The first basin "A" would be divided into two compartments to allow cleaning each basin as needed without shutting down. Water would be aerated before entering basin, and chlorinated after aerating. The purpose of this pit is to skim the oil. Each compartment would have a capacity of 2500 barrels.

The second basin "B" would be one 5000 barrels capacity pit with baffle. Water would be aerated before it enters basin "B." Alum and lime would be added after aerating and before water entered basin "B." Water from this pit would be filtered and run into injection well.

3. Four eight-foot filters with a capacity of 14,000 barrels per day would be installed. Other equipment would consist off:

Backwash pump if gravity head not available, which would consist of four-inch centrifugal pump powered by an electric motor; back pressure regulator for controlling flow into well; orifice meter for measuring water; and a pit for holding backwash water plus a pick-up pump (1½-inch centrifugal pump).

4. Estimated Cost.

Pit "A" complete with aerator, baffler, etc.	$4700.00
Pit "B" with baffle	3500.00
Chemical feeders (lime and alum) and aeration slab	2000.00
Filters—four at $1200 each	4800.00
Backwash pump $500 Regulator $100	600.00
Orifice Meter $200 Pipe and Fittings for plant $1000	1200.00
Backwash pit and pump $1000. Dirt work, grading, fence, $1200	2200.00
Grand Total	$19,000.00

The estimated plant cost of $19,000 is for a 10,000-barrel-per-day plant and adaptable to one disposal well outside field or two disposal wells within field if located reasonably close.

Discussions developed that it would be advantageous to separate plant parts A and B and locate part A within field then pump clean water to part B. If this should be done the cost would not change materially.

If a 5000-barrel plant is used for only one disposal well in the field, the cost of smaller pits in proportion to plant capacity would not greatly reduce the cost of pits. In view of this, the subcommittee was of the opinion that it would be better to keep the pit size the same and thus have the additional storage. Some discussion on this point developed that if a saving of only a few hundred dollars could be effected it would be a substantial one for all the plants to be erected. If all should adopt smaller size pits and eliminate two filters for plant (pit sizes in A

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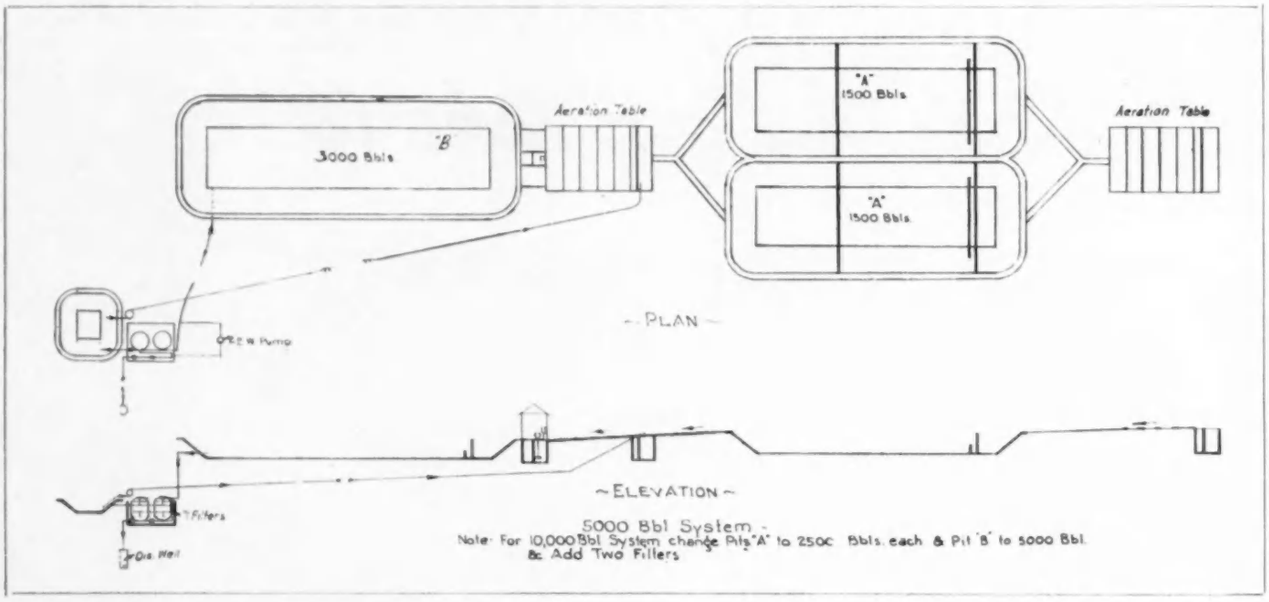


at 1500 barrels each and in B at 3000 barrels) the estimated cost of plant would then be $14,600, or a saving of $4400 per plant which would be $154,000 for entire project of thirty-five plants.

Details of Gathering System

The following conclusions were drawn and recommended by the engineering committee:

1. *Type of pipe for lines.* Should be asbestos cement-fiber for low pressure or cement-lined steel for high pressure pipe-lines. Orangeburg-fiber or equivalent considered for gravity lines due to very material savings.

2. *Type of gathering system.* Should be a combination gravity and pressure system; gravity drainage to be utilized wherever possible from lease to central gathering station from which point pressure will be employed when necessary to transfer salt water to the disposal well location.

3. *General Plan—*

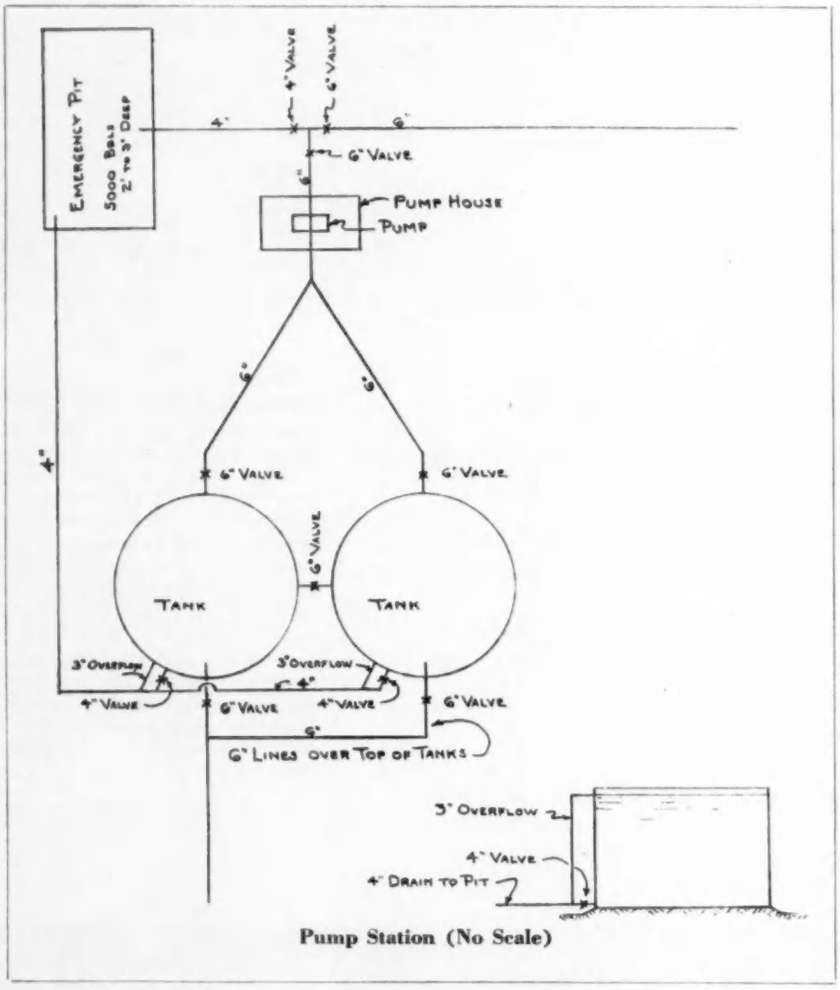
a. Lease battery hookup. Individual operators should deliver the produced water to the salt water disposal system gathering line terminal at the lease battery site with a sufficient pressure head to enter line; operator should further provide an emergency pit for storage in event of a forced shutdown.

b. Lease Meters. Each separate lease connection should be provided a suitable water meter (positive displacement type preferred).

c. Surge standpipes or back pressure valves. Each line should be equipped with mechanical devices to prevent back flow and permit efficient gravity flow from individual leases.

d. Settling Tanks (central gathering pump station). At these determined pumping stations there should be suitable storage of sufficient capacity to provide at least two hours settling time. Two 600-barrel wood tank plus an emergency 5000-barrel earthen pit recommended.

e. Pumps. All pumps for salt water transfer should be of the centrifugal type powered with electric motors and as completely automatic in operations as is possible.



Pump Station (No Scale)

IN A LONG PULL

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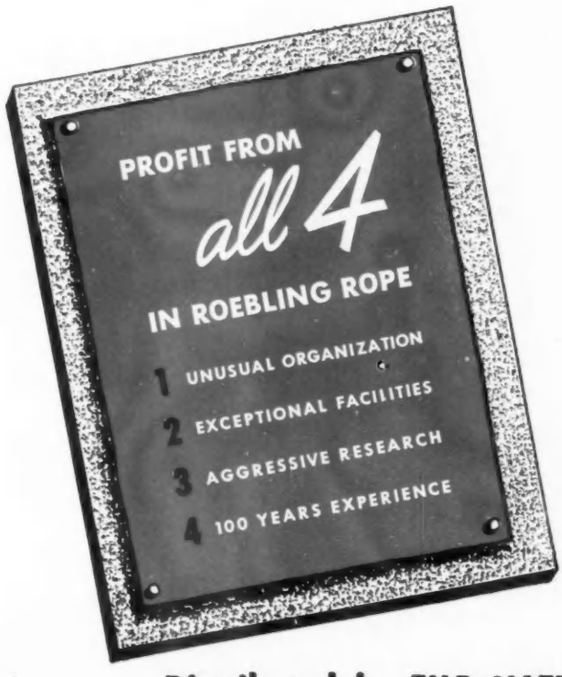

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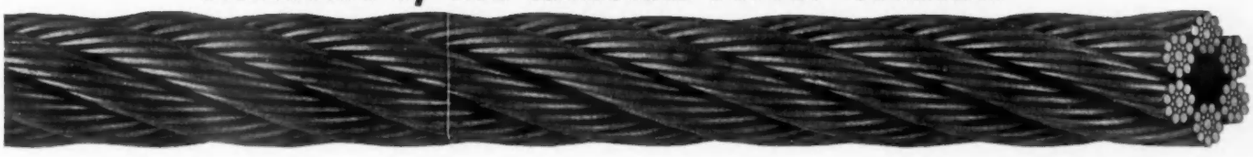

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With this machine, rope of the largest diameters can be handled without the slightest danger of unbalance. The result is—higher rope efficiency, higher all-around quality.

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Automatic Release Hanger Lessens Heavy Tong Chores

HEAVIER strings and generally increased loads on the pipe call for stepped-up weight in the tools required to handle it. As a result tongs, for instance, have become so heavy that, even with the usual balanced suspension and accurate counterbalancing, swinging them out of the way between periods of use is a chore apt to call for more than one man of the derrick crew.

The lighter types of tongs are usually swung back, the eye lifted over a hook, fastened to the back-up post or to some convenient portion of the derrick structure itself. It being necessary in each case to lift the eye clear when the tongs are to be put in use.

With the heavy type of back-up tongs used on deep drilling it is even more imperative that this piece of equipment be stored away from the floor to provide the necessary passageway and working space. And with the larger derrick floors in use, the arc of swing to the storage point is augmented, adding to the force required to hold the tongs at the greater angle, much less lift them to permit engagement of eye on hook.

A simple type of hook featuring automatic release of the tongs when required has been worked out by one company in which gravity is used as the actuating force to free the tongs and permit ready swinging of the tool back to engagement with the string of pipe.

The usual hanger stand is used as basis for the fastening, with a nipple of one-inch pipe, some 4 inches in length, being welded vertically to the draw works side of the stand, with the base of the nipple some 36 inches above the floor. Up through this nipple is slipped a 24- or 26-inch long ¾-inch diameter steel bolt, the head engaging against the bottom of the nipple if raised to highest elevation possible. The upper portion of the bolt is heated and bent at a point some 16 or 18 inches from the head, being bent sharply through 90 degrees to form a shoulder which will abut on the top of the vertical nipple. The outer end of the bolt is then again bent upward, to form a hook with slight slope toward the angle at its base. The hooked end is about four inches in length, to provide ample engagement for the eye of the back-up tongs.

To hang tongs with this hanger, they are swung back into the general direction of the support, the eye riding above the height of

When hooking the tongs out of the way at the hanger stand it is necessary only to guide the eye with one hand and engage the hook with the other, the device affording ample flexibility through its design.

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WYTEFACE "A" is the result of constant research. Less than thirty years ago all steel tapes were shiny—until K&E developed the well-known Keco finish to provide contrast for the numbers and graduations. In 1935 this same research produced the famous WYTEFACE line, with easy-to-read graduations marked directly on a crack-proof white surface. It is but one logical step to WYTEFACE "A" with its increased resistance to abrasion, designed particularly for oil field service!

There are K&E WYTEFACE "A" Steel Tapes in all sizes and types—in cases or on reels—for every job in the oil industry. You will find them stocked by every leading oil well supply company. Ask your dealer—or write for a catalog.

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the hook in the bolt when the latter is in its lowest or dropped position. To engage the hook in the eye with one hang while guiding the swing of the tongs with the other is a comparatively simple operation, the bolt having a space of some 14 inches vertically through which it may be moved to engage the hook, while the offset permits a lateral swing through a circle with a radius of around 12 inches.

When the hook has been brought to the level of the tong eye and engaged therein, the swing of the tongs on the supporting line is sufficient to hold the catch in positive engagement, with the slight wedging action of the backward sloped hook tending to draw hook and eye into closer engagement under derrick vibration, and thus prevent accidental release of the heavy tool, with possibly serious results were it to swing across the floor. The length of the horizontal or offset portion of the retainer bolt is ample to provide grip for lifting and guiding the hook during the latching operation without exposing the tongman's hand to possible injury, as when heavy tongs have to be lifted and hooked over a permanently fixed fastening.

When the tongs are required, the back-up man need not leave his position at the rotary table, but merely must shove slightly against the nearer end of the tongs, moving them outward and back through a slight distance, and thus releasing the tension which has retained the hook and eye in engagement through that portion of the weight of the tongs acting through the angle from vertical at which it is suspended when in the storage position.

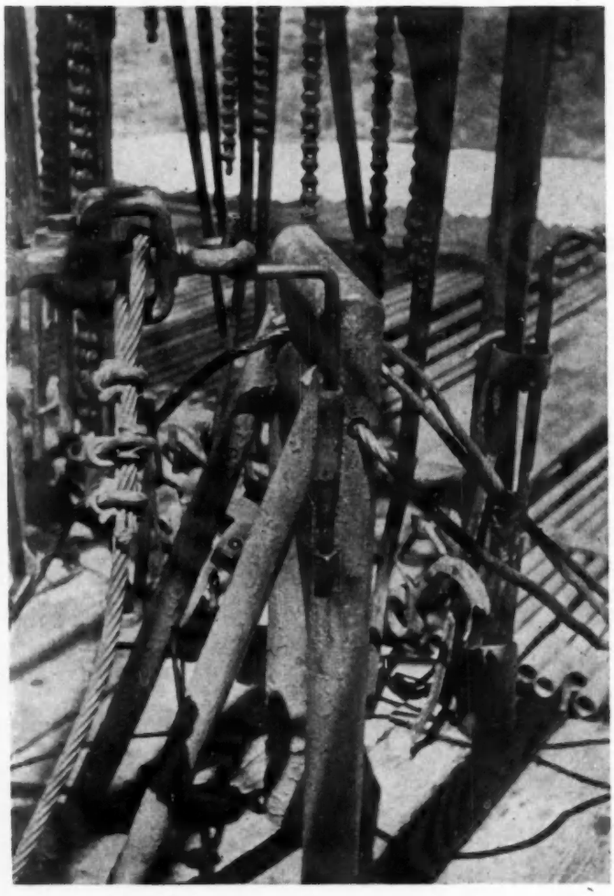
With the push on the end of the tongs, the pull which maintains engagement is released, and the hook portion slides of its own weight downward through the pipe socket and leaves the tong end free. Since the hook arm is formed at right angles to the socketed section, there is no jamming even if the bolt fall free through the entire foot of clearance, and it is readily raised again for use when desired.

Hanging the tongs out of the way between periods of use aids also in keeping the derrick floor clear of the back-up line, which tends to form a turn or coil directly below the tongs when they are pushed out of the way and hooked to the same stand through which the line itself runs.

This type of gravity-operated latch for the tongs entirely eliminates the strain of holding the heavy tool at the end of an arc and lifting it at the same time, the entire operation now being performed with a simple swinging motion, the hook being raised and engaged while the eye of the tongs is moving through the end of its swing, coming to rest, or starting back toward the string again. Since the engagement of eye in hook is made with the tongs practically at rest, there is no heavy or sudden strain put on the bolt, to tend to distort it or bend it at the point of contact with the socket in which it slides.

Use of the 1-inch nipple as guide provides ample clearance for the bolt to permit it to drop readily from the working position, in spite of the weight of the offset arm.

To release the tongs for use at the rotary, a slight push toward the hook releases its grip and it drops clear, instantly freeing tongs.



The latching or hooking device consists of a steel bolt, carried in a vertical guide, bent at right angles for hook and spacing arm.

Designs of Casing Strings

By EMORY N. KEMLER
Associate Professor of Mechanical Engineering, Purdue University

Theory of Casing Collapse

PART 3

THE values for collapse, tension or pull-out, and bursting failures as listed in Table 2 of the preceding article were based on the assumption that each method of loading was applied independently. Actually a combustion of collapsing and tensile loads, and bursting and tensile loads may be applied simultaneously. Failure under these conditions may be quite different. Where a uniform size and weight of casing is used throughout a given string, design of the maximum of the three types of loading will give a safe string. When the weight of casing is varied in a given string, failure under combination loading may occur.

The simple casing string normally is subjected to the maximum collapse pressure at the bottom where the tension load is zero and is subjected to the maximum tensile load at the top where the collapsing pressure is zero. One exception to these cases is where there is tension at the bottom of the string as a result of a pull on the string or because changes in temperature after the cement has set have resulted in an increase in tension in the string. Another exception would be where there is gas behind the pipe, giving a collapsing pressure at the top of the well where the tension is a maximum. These cases can be treated in the same manner as the tapered string which will be considered later.

The maximum shear strain energy theory seems to best fit actual stress problems involving loading in more than one direction. This theory says that if a member is loaded in two directions as indicated in Figure 7, that the maximum stress resulting from the resultant of the loading in two directions will be given by

$$S^2 = S_c^2 + S_t^2 + S_t S_c$$

where

S = yield stress in simple tension
S_c = compressive or collapse stress
S_t = tensile or longitudinal stress

This relation can be shown simply by the graph given in Figure 8. This curve is obtained by dividing the above equation by S^2 and plotting the resulting ratios. This graph or ellipse of elastic failure shows that in the third quadrant where both the longitudinal and circumferential stresses are compressive that failure can occur at values higher than the simple yield strength. In the fourth quadrant where the longitudinal stress is tensile and the circumferential stress is compressive, failure occurs at lower stresses. If for example, there is no pull in the pipe, i.e., the longitudinal stress is zero, failure will result when the ratio of circumferential stress to yield stress is one. If a tension is put in the pipe to give a stress equal to one-half the yield strength in tension or a value of longitudinal stress over yield stress of 0.5, failure will occur when the compressive stress is 75 percent of the yield strength in compression. A combination of tension and compression will result in an increase in resultant stress, or will result in a reduction in loading which can be applied without exceeding the elastic limit of the material. When the weight or grade of casing is reduced in a tapered string, a weight larger than

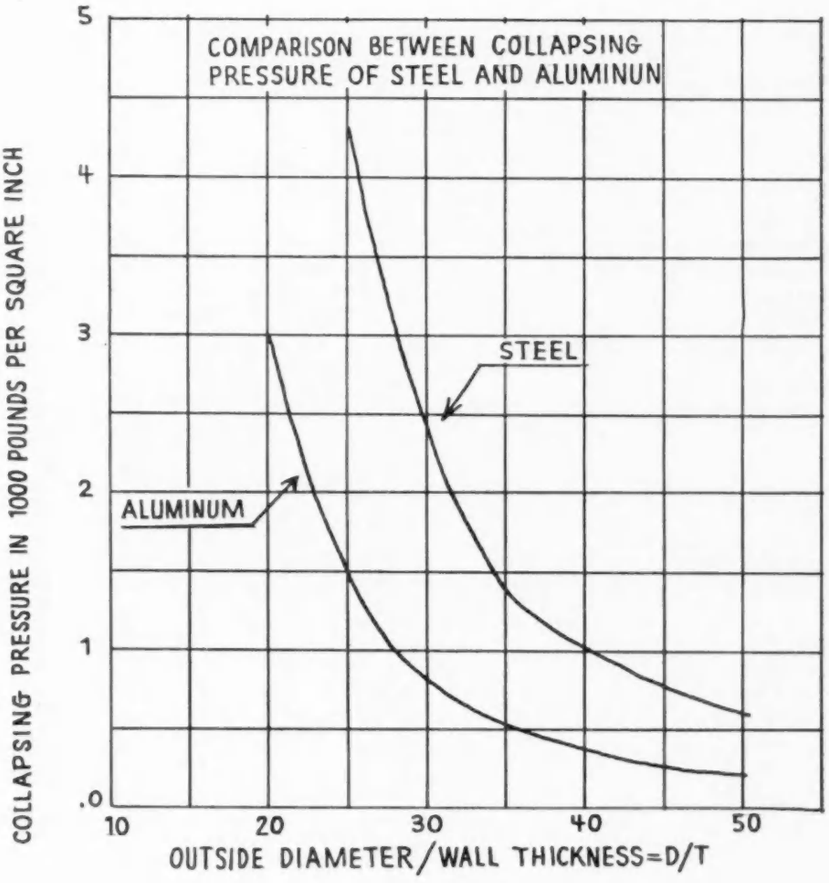


FIGURE 6

TABLE 3
Physical Properties of API Casing and Tubing

	A.P.I. Grade Symbols			
	F-25	H-40	J-55	N-80
Yield Strength (Minimum)* lb/in.²	25,000	40,000	55,000	80,000
Tensile Strength (Minimum) lb/in.²	40,000	60,000	75,000	100,000
Percentage Elongation in 8 inches (Minimum)	20†	....	....	....
Percentage Elongation in 2 inches (Minimum)	40	27	20	16

* See Paragraph 13—A.P.I. Specifications 5-A.
† Elongation in 8 inches is 20 percent for O.H. iron as shown and 12 percent for wrought iron.

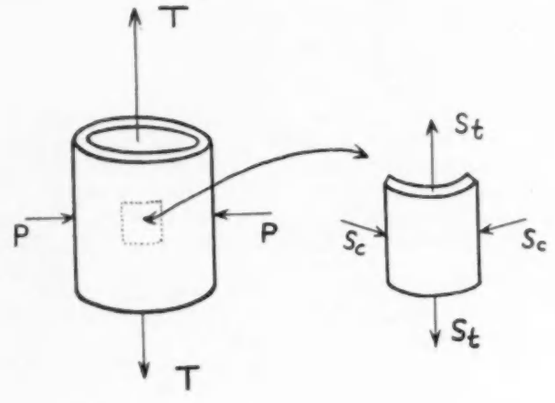


FIGURE 7

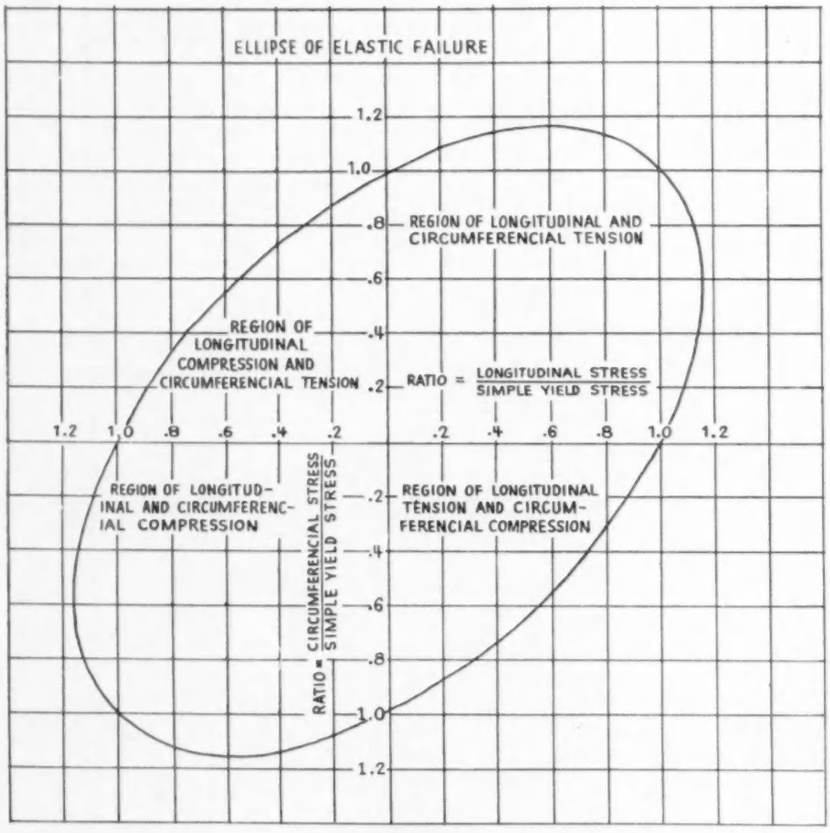

ELLIPSE OF ELASTIC FAILURE
REGION OF LONGITUDINAL AND CIRCUMFERENCIAL TENSION
REGION OF LONGITUDINAL COMPRESSION AND CIRCUMFERENCIAL TENSION
RATIO = LONGITUDINAL STRESS / SIMPLE YIELD STRESS
REGION OF LONGITUDINAL AND CIRCUMFERENCIAL COMPRESSION
REGION OF LONGITUDINAL TENSION AND CIRCUMFERENCIAL COMPRESSION
RATIO = CIRCUMFERENCIAL STRESS / SIMPLE YIELD STRESS
1.2
1.0
.8
.6
.4
.2

FIGURE 8

would be calculated from collapse pressure alone must be used.

If the lower part of the casing string is put in compression by release of some tension at the top of the hole, the casing can stand a much higher collapsing pressure before failure than where it is in compression longitudinally alone. If the longitudinal compression stress is 50 percent of the yield stress in compression, then collapse will not occur until the collapse value is 16 percent over the value for failure in simple collapse.

The combination of internal or bursting pressure and tension load is covered by the first quadrant. In this case as is the case for compression in two directions, the one stress relieves the other and higher loads can be carried. If then a string of pipe just strong enough in tension is subjected to an internal pressure, failure will not occur unless the stress due to internal pressure in excess of 50 percent of the yield stress in tension. This assumes that the internal pressure does not change the tension in the pipe, which is not always true. (See previous articles.)

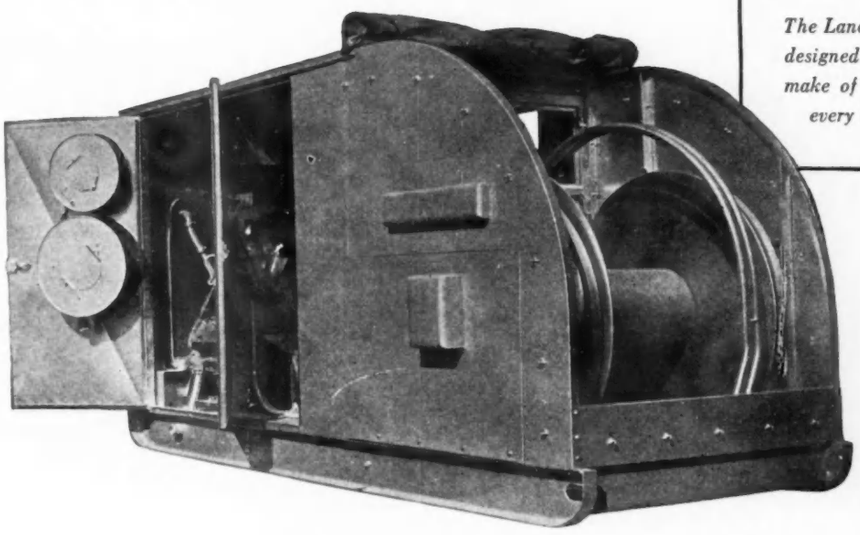
The application of the general theory can be made in many ways. One is to calculate the various values and then check back with the formulas or curve. Another is to calculate the equivalent length below the section in question and use the curves given in Figure 9. In this case, the equivalent length is given by

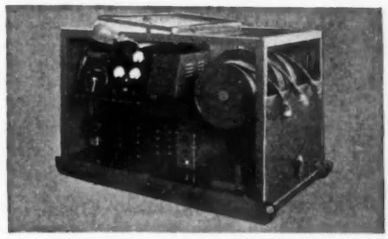
$$L_e = L_2 \frac{W_2}{W_1} + L_3 \frac{W_3}{W_1}$$

where L_e is the equivalent length for point Y and the other values are as shown in Figure 9. Assume as an example an 8000-foot string of J-55 casing. The lower 2000 feet are to be 20-pound pipe and the upper section is to be reduced to 17-pound. The factor of safety based on minimum values assuming zero load at the bottom and 12-pound mud is $\frac{5770}{5000} = 1.15$. The equivalent length of 17-pound casing would be $2000 \times \frac{20}{17} = 2350$ feet. Figure 9 shows that for this value failure would occur as 96 percent of usual collapse pressure or at $.96 \times 4500 = 4320$. The pressure at this point would be 3800 pounds per square inch giving a factor of safety of $\frac{4320}{3800} = 1.13$

LANE-WELLS *Gun Perforator*

The Lane-Wells skid Unit Gun Perforator is designed for mounting on the flat bed of any make of truck or barge. It is complete in every mechanical and electrical detail.



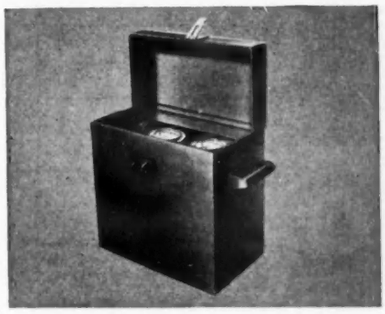


The Lane-Wells Electrical System Central Control Unit contains all the electrical control equipment used in the Special Service Truck and Skid Units.

. . . for fields outside the United States and Canada

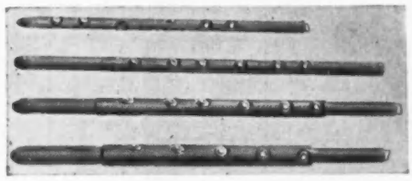
Four types of Gun Perforator Units are available for use by operators in fields outside the United States and Canada. Selection is determined by the amount of perforating to be done and the area in which the equipment is to be used.

The Skid Unit and the Special Service Truck Gun Perforator Units are equipped with from 8,000 to 15,000 feet of special conductor-core cable, hoist, generators, auxiliary hoisting controls, visual-registering, depth-measuring and weight indicating devices. All operating controls are so grouped that the operator has full knowledge of the gun location and weight on the cable without taking his eyes from the control panel. A two-way public address system permits the operators to be in constant communication, regardless of the distance of the Unit from the derrick. The sheave assembly over which the cable is run is suspended in the derrick. The synchronized motor depth indicator gives extremely accurate measurement of cable as the gun is lowered into the hole. The $\frac{7}{16}$" diameter improved plow-steel, preformed line has a tensile strength of approximately 9 tons. A five-point safety system of switches, that must be closed before the gun can be fired, protects men and equipment during operations at the well. Lane-Wells guns are of extremely high-pressure construction. Powder loads are packed to the correct density and placed directly behind the bullet to drive it from the barrel with greater force and less friction loss. The design and construction of Lane-Wells guns provide greater perforating power and deeper penetration into formation after casing and cement have been perforated.



Lane-Wells Portable Firing Control Panel, powered by "B" Batteries, is used for operating Lane-Wells Gun Perforator or setting Lane-Wells Bridging Plugs.

Lane-Wells Special Service Truck with custom built hoist and mechanical and electrical control systems. For use when gun perforating operations are performed regularly on a large scale and over a long period of time.



Four gun perforation sizes meet operating needs, 3½"—12 shot, 4¾"—12 shot, 5¾"—12 shot and 6⅝"—10 shot. Other guns can be built to order.

SEND FOR COMPLETE DETAILS: *Inquiries about Lane-Wells Gun Perforator Units should be directed to Lane-Wells Company, 5610 South Soto Street, Los Angeles, California.*

LANE WELLS COMPANY

Everywhere

which indicates that a little more than 2000 feet of 20-pound casing is necessary to give the same factor of safety in the 17-pound casing.

While the curve shown in Figure 8 is applied only to casing in this article, it has many other applications. It shows, for example, why it is safe to consider only the maximum principal stress in a pressure tank such as a separator. When a vessel is under internal pressure, both longitudinal and tangential tensile stresses are set up. The longitudinal is one-half the tangential. Figure 8 shows that this combination actually gives a greater factor of safety than would be indicated by considering the maximum principal stress alone.

The American Petroleum Institute has, through its standardization committees, adopted standard dimensions and specifications for casing which are commonly used for the casing of oil wells. In order to keep the casing stocks to some reasonable size, the A.P.I. has adopted certain sizes as standard and has also adopted four classes of material to fit the various requirements.

TABLE 4

Operating Practices Affecting Casing Design

Future Well Conditions

1. Possibility of failure of string because of corrosion
2. Possibility of failure of string because of other causes
   a. Shifting formations
   b. Too low factor of safety
   c. Damage because of tubing failure
3. Necessity of workover of formation
4. Possibility of drilling deeper
5. Clearance for liners of specified sizes

Producing Practices

1. Producing capacity required
2. Well to be pumped or flowed
3. Well to be flowed through tubing or casing
4. Size of sucker rod strings
5. Type of fishing tools
6. Use of packers in multiple producing zones

Drilling Practices

1. Bit clearance
2. Hole clearance
3. Amount of open hole carried
4. Cementing practices
5. Mud weight
6. Type of formation drilled

The properties of the four grades of iron and steel which have been adopted for casing and tubing are listed in Table 3. The H-80 grade as shown was added to take care of very deep wells. The J-55 grade is normally used on moderate depth wells, and the J-25 and H-40 are used for shallower depths, the J-25 grade being lap welded pipe. In addition to setting up the general physical properties of the material, the A.P.I. specifications give in detail the various test requirements which casing steel must meet. While these tests are important, they are not within the scope of this discussion and will not be treated further. In addition to the physical properties and tests, the A.P.I. has standardized on the lengths of different ranges of casing.

Perhaps the most important of all the benefits to be obtained from standardization is that of interchangeability of the product. The A.P.I. dimensional standards makes possible the use of casing of various manufacture on a given job. With the advent of deeper wells, the A.P.I. recently made some

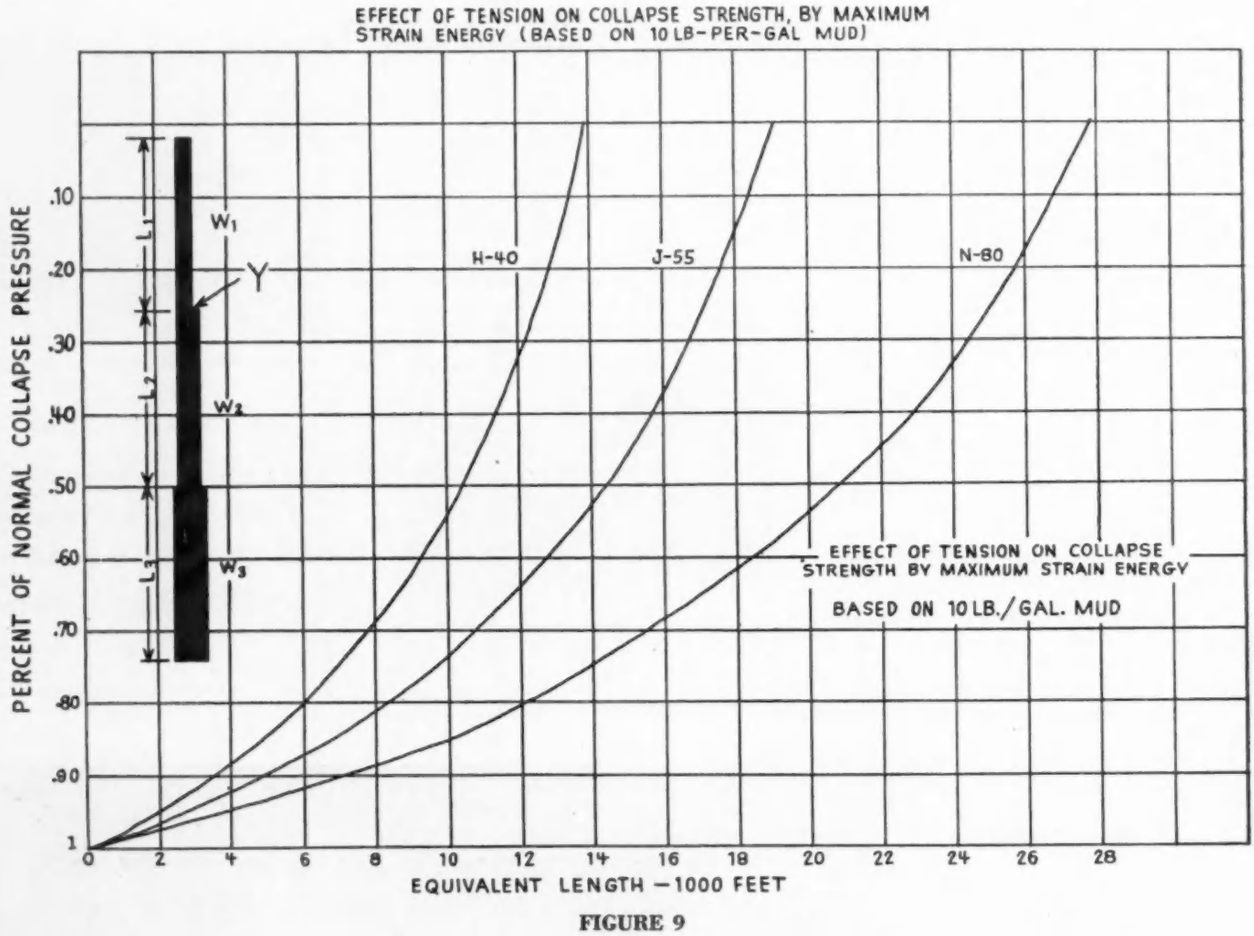
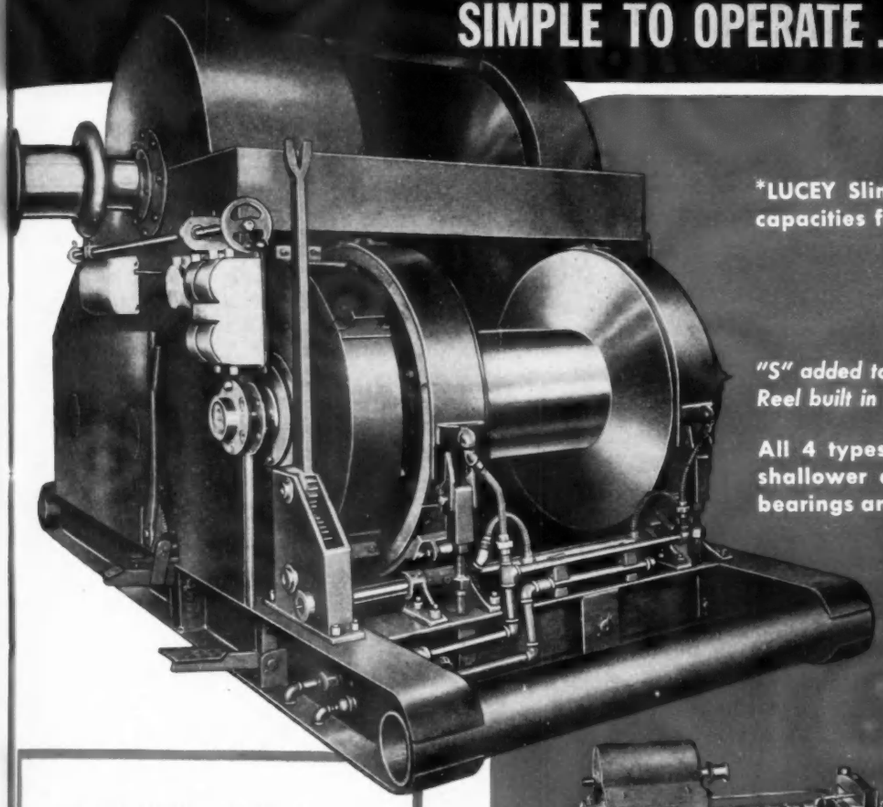


FIGURE 9

LUCEY SLIM-HOLE DRILLING EQUIPMENT

EASY TO TRANSPORT IN FIELD . . . EASY TO ASSEMBLE AT DERRICK . . . SIMPLE TO OPERATE . . . EXTRA RESERVE POWER



*LUCEY Slim Hole Drilling Outfits are built in 4 sizes and capacities for drilling to the following depths:

Type "B" — 2,000 ft. to 3,000 ft.
Type "C" — 3,000 ft. to 4,000 ft.
Type "D" — 4,000 ft. to 5,000 ft.
Type "E" — 5,000 ft. to 7,000 ft.

"S" added to above types indicates outfit is supplied with Sand Reel built in as part of Drawworks unit. Sand Reel optional.

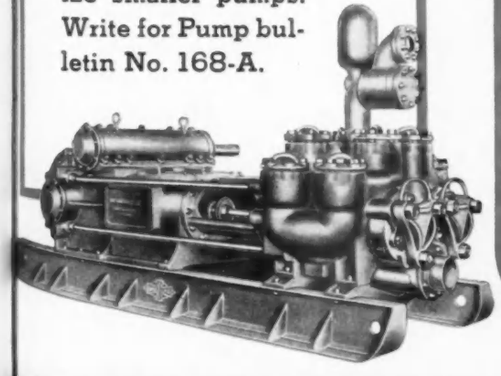
All 4 types are identical in general design. Outfits for shallower depths have fewer Texropes, smaller drums, bearings and other dimensions. Engines of smaller horsepower are used and Slush Pumps are smaller. All Drawworks units are roller bearing throughout, equipped for manual control. They may be arranged for air control if so ordered.

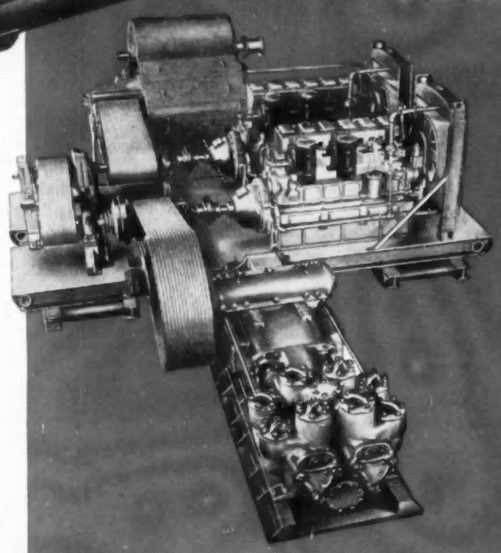
ATTRIDGE REVERSING PULLEY (patented) supplied on all outfits as standard practice unless ordered otherwise. Reversing mechanism is contained inside Texrope sheave and is operated from driller's position in conjunction with the two-engine control.

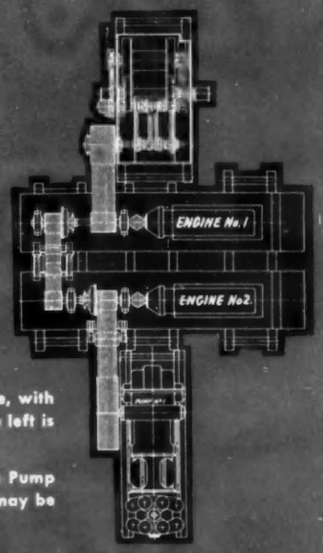
WHELAND-LUCEY POWER SLUSH PUMP

H P-11500-AB-7½" x 14"

This pump is recommended for use with type "E" or "ES" slim hole outfits. The smaller outfits for shallower drilling utilize smaller pumps. Write for Pump bulletin No. 168-A.







General Specifications: The type "ES" outfit is shown above, with the hook-up plan at right. The Drawworks unit shown above left is the "ES" type . . . (with Sand Reel).

Each outfit consists of the Drawworks unit, two Engines and a Pump —all mounted on individual sled-type skids. Two pumps may be supplied if desired.

LUCEY EXPORT CORPORATION

3505 Woolworth Building, New York, N. Y.

Broad Street House, E. C. 2, London, England
811 Sterling Building Houston, Texas

OIL WELL SUPPLIES

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Calle Defensa 320, Buenos Aires, Argentina
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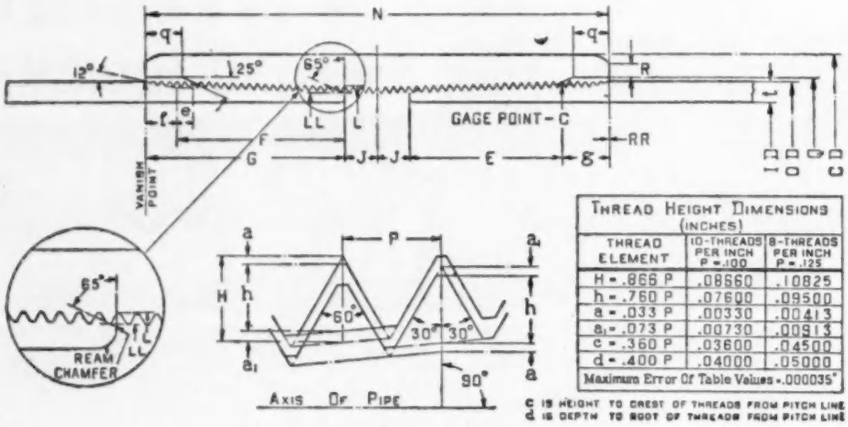


THREAD HEIGHT DIMENSIONS (INCHES)		
THREAD ELEMENT	10-THREADS PER INCH P = .100	8-THREADS PER INCH P = .125
H = .866 P	.08660	.10825
h = .760 P	.07600	.09500
a = .033 P	.00330	.00413
a_1 = .073 P	.00730	.00913
c = .360 P	.03600	.04500
d = .400 P	.04000	.05000
Maximum Error Of Table Values = .000035"		

c IS HEIGHT TO CREST OF THREADS FROM PITCH LINE
d IS DEPTH TO ROOT OF THREADS FROM PITCH LINE

TAPER 1 IN 32 ON DIA. FOR 10-THREADS PER INCH
TAPER 1 IN 16 ON DIA. FOR 8-THREADS PER INCH
Taper Shown Exaggerated In Diagram

FIGURE 10
API STANDARD SHARP-THREAD CASING, NON-UPSET
(Applies to all sizes of non-upset, sharp-thread casing, both short and long thread.)

radical changes in specifications to get a better product. The thread form has been changed from the sharp thread as shown in Figure 10 to a round thread form as shown in Figure 11. At the same time the tolerances on the thread elements were reduced and a much more accurate joint resulted.

Operating Factors

The design of a specific string of casing involves many factors, most of which are difficult to evaluate. Fortunately most of these factors are decided by the company policy and as a result of operating practices over a long period. Because of the considerable amount of money involved, the engineer must constantly study the casing programs in order to be able to take advantage of any local or market conditions and changes in production practices. Today the national emergency has introduced a further problem in supply and materials which will require constant changing of casing programs.

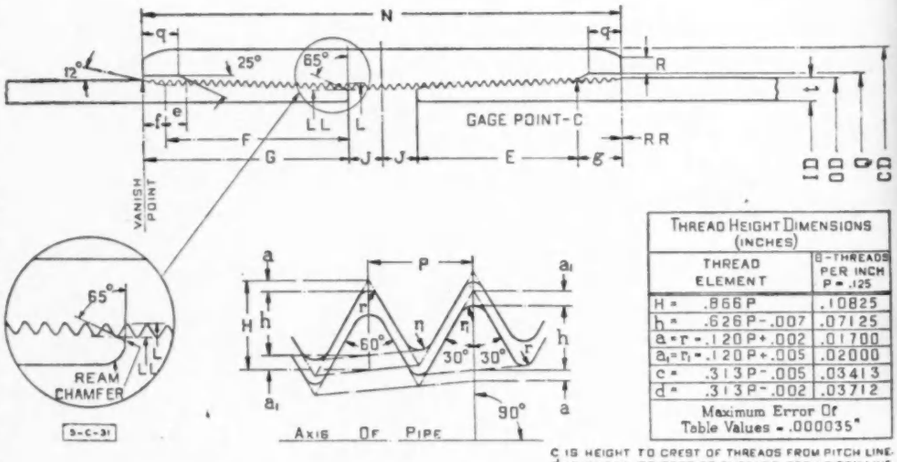
The operating factors which will affect the design of casing programs are drilling practices, producing practices, and finally future well conditions. Some of these factors are listed in Table 4. Future well conditions are perhaps of first consideration. In areas where casing failures may occur because of corrosion, or for other reasons, it may be desirable to make provision for running an emergency string to permit continued production. If a well must be cleaned out or shot, or if liners must be pulled or run, the oil string should be of sufficient size to permit running of necessary tools.

The producing practices or requirements are the controlling factor when future well conditions do not have to be considered. The type of pool, amount of fluid to be handled, probable loads which will be encountered and allowable production will determine initial and final tubing sizes. The requirements or restrictions for taking potentials on wells may also influence casing sizes. Since failures of sucker rods and tubing are always possible, provision must be made for fishing and clearance allowed for fishing tools.

The drilling practices will dictate the size of hole which can be drilled through a given string. Again company practice will dictate the size casing which it is safe to run in a given size of hole. The size may vary with the type of formation to be drilled and the amount of open hole carried.

Another factor which must be considered is availability in sizes, weights and grades. In the designing of any casing program, it is always possible to reduce the weight of steel required by using the calculated required weight. Practically, it is not feasible to have a wide range of weights and sizes because of high cost of manufacturing and stocking of casing. Local conditions frequently are such as to make a new size or weight desirable. If there is sufficient volume of business, the manufacturers will meet that requirement. The question of standardization is a most difficult one. Each user wishes to have available the sizes and weights which will fit his requirements. He is interested in making savings in initial investment where possible. Unless standardization can show the operator a savings either immediate or future, it will be difficult to carry out completely. Unless standardization can result in lower manufacturing or distributing costs, the manufacturer has little interest in it since he is primarily interested in furnishing the customer what he needs at the lowest cost.

Standardization can be most easily set up and controlled through price differentials. If the actual differentials are not sufficient to maintain standardization, the standardization is probably not justified. The A.P.I. program on standardization is an attempt to arrive at a rational basis for standardization and keep the weights and sizes to a minimum. To make the discus-



THREAD HEIGHT DIMENSIONS (INCHES)	
THREAD ELEMENT	8-THREADS PER INCH P = .125
H = .866 P	.10825
h = .626 P - .007	.07125
a = r = .120 P + .002	.01700
a_1 = n = .120 P + .005	.02000
c = .313 P - .005	.03413
d = .313 P - .002	.03712
Maximum Error Of Table Values = .000035"	

c IS HEIGHT TO CREST OF THREADS FROM PITCH LINE.
d IS DEPTH TO ROOT OF THREADS FROM PITCH LINE.

TAPER 1 IN 16 ON DIA. (Shown Exaggerated In Diagram)

FIGURE 11
API STANDARD ROUND-THREAD CASING
(Applies to both short and long thread.)

An open letter

to the Brass Hats
of 2700 Oil Companies

There's an old saying that it's sometimes possible to get so close to the forest you can't see the trees. This is true of operations even in a small company like ours, and possibly also applies to larger corporations in the oil business. The purchase of heavy oil field equipment, involving initial expenditure running into many thousand dollars, receives the attention and consideration of key men in the company. On the other hand, the purchase of smaller items, such as a plunger pump or a string of sucker rods, doesn't always receive the consideration or attention which we believe this purchase merits.

If every oil company takes its total yearly bill for deep well plunger pumps and sucker rods and adds to it the amount of extra production that is obtained by quality pumping equipment it will appreciate that here is an expense item of no mean proportions. We know of one oil company which during 1941 plans to spend approximately $140,000 for deep well plunger pumps and sucker rods. Purchases that reach a figure such as this rightfully deserve consideration of top executives.

It is at this point that Axelson Pumps and Sucker Rods enter the picture. If you want to pump the greatest quantity of oil at the lowest cost per barrel you will install Axelson Pumps and Sucker Rods. They are not always the cheapest, if you consider initial cost, but they are the most economical day in and day out, under favorable and unfavorable conditions, both from the standpoint of lowest long run cost and increased production. Check up today on what your pump and rod bill was during 1940. Then you'll appreciate why we say this is a purchase which justifies the consideration of top men in every oil company.

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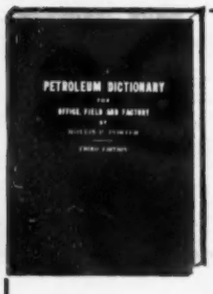

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sion as complete as possible, Table 2 of Article 2 (previously published) has included data for sizes other than these adopted by standard by A.P.I. but which are in common use.

In order to make easier the selection or comparison of data on various casing programs, Figure 12 has been drawn. This chart makes it possible to take into account all the factors involved in selecting casing weight and size, on a single sheet. The values for which this chart are constructed are thus based on the minimum being 75 percent of the average values as given in A.P.I. Setting Depths Bulletin 5-C-2. The values used in plotting collapsing pressures are taken from the paper by Westcott, Kemler and Dunlop on Setting Depths for Casing as given in the 1940 Transactions of A.P.I.

To use this chart, the following procedure is to be followed. Enter the chart on the scale marked "Well depth in 1000 feet." Trace across to the factor of safety desired (based on minimum values), then up to the mud weight to be used in calculating collapsing pressure, and then across to the size and grade of casing to be used. The example shown is for a 4000-foot well, using a factor of safety of 1.2 based on minimum values (1.6 based on average values), and a mud weight of 11 pounds per gallon. To provide sufficient strength for this condition, any of the following weights or grades would work.

SIZE	GRADE			
	J-25	H-40	J-55	H-80
5 in.	15 lb	....	13 lb	13 lb
5½ in.	20 lb	15 lb	14 lb	14 lb
6 in.	....	....	16 lb	16 lb
6⅝ in.	26 lb	....	20 lb	20 lb
7 in.	30 lb	24 lb	22 lb	20 lb
7⅝ in.	33.7 lb	....	26.4 lb	26.4 lb
8⅝ in.	43 lb	....	32 lb	32 lb
9⅝ in.	....	36 lb	40 lb	40 lb

The compilation of such a table immediately shows the advantages or disadvantages which a weight or grade may have. For example, it shows that with 6-inch casing, there is no point in considering H-80, since the same weight is required for either J-55 or H-80. In the case of 5½-inch casing, J-55 and H-80 would offer little advantage in weight over H-40. A combination of such tables for various factors of safety could also be made. When a table for size, weight and grade is made, cost figures can be immediately made and a cost comparison made.

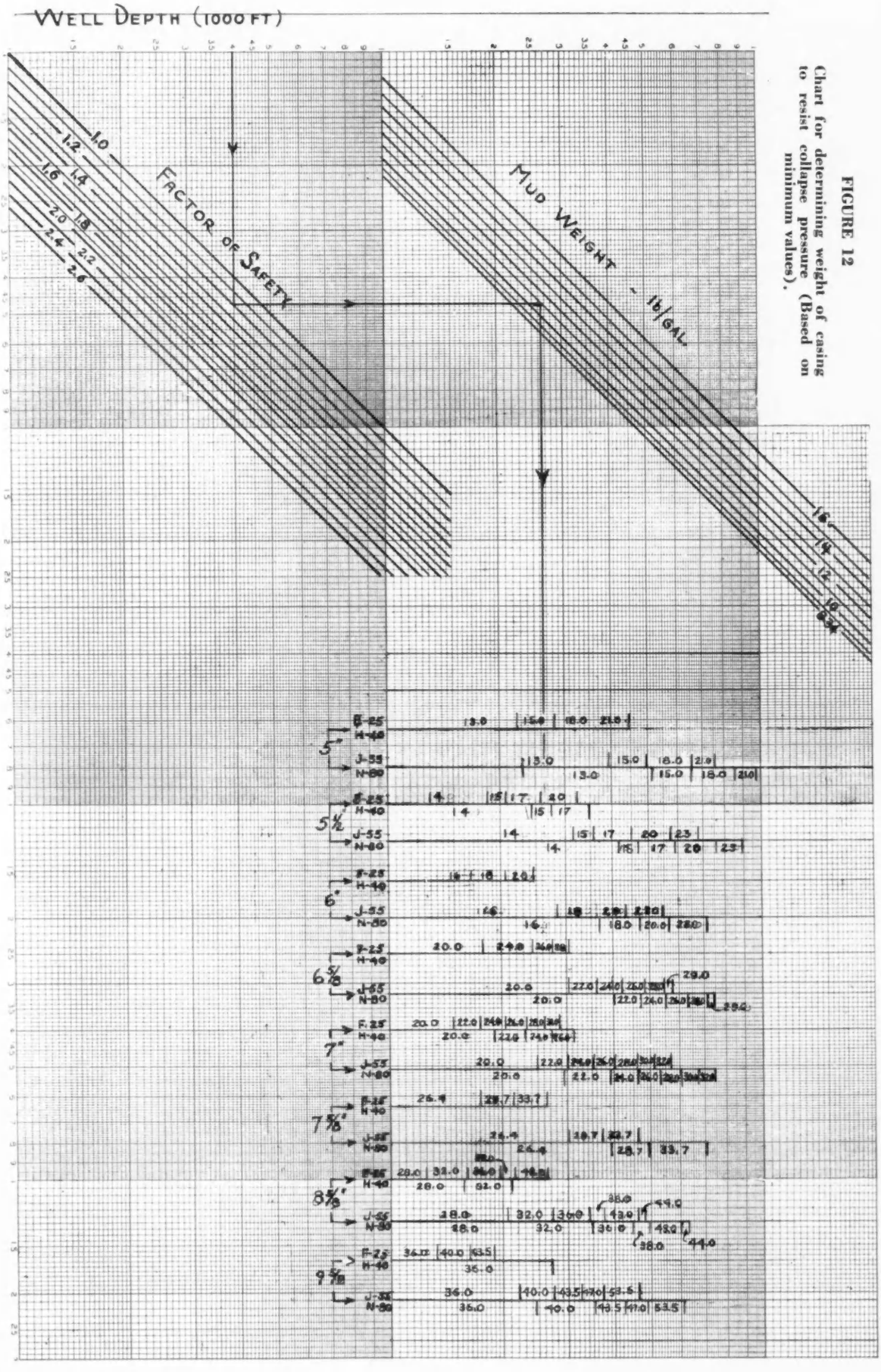


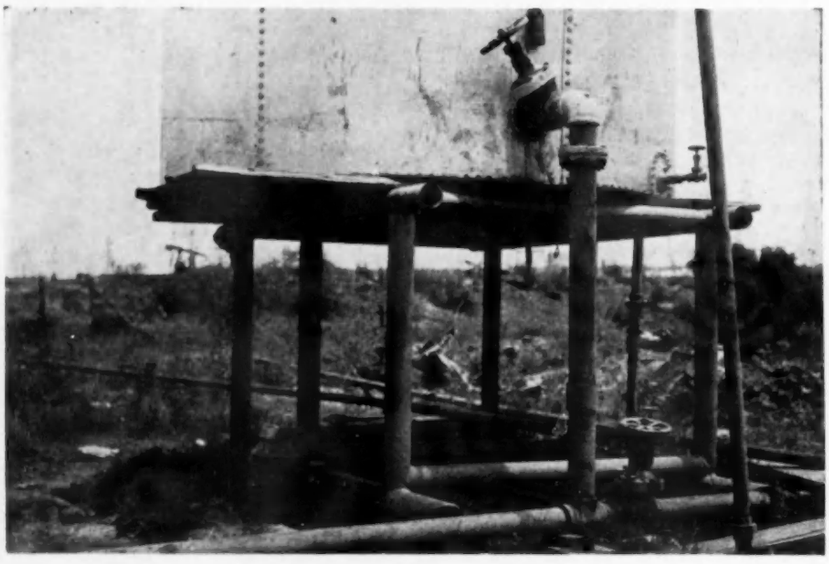
FIGURE 12

Chart for determining weight of casing to resist collapse pressure (Based on minimum values).

Practical Operating Hints for

1. BOILER FEED STORAGE

All-Welded Tank Support Insures Gravity Head on Pump Suction and Bettered Flow



Heavy pipe base with elevated frame for plank tank base prevents corrosion of tank base and enables check on leakage as well as affording better delivery to suction headers at pumps.

AN ELEVATED steel storage tank for boiler-feed water allows gravity head on water to pumps. A support for the tank may be made from welded pipe, making a sturdy structure which is easily movable as a unit when changing locations, and as easily erected when rigging up. The structure is a permanent part of the rig equipment, and assures constant height of the storage tank.

The base is made of two pieces of 6-inch pipe, placed parallel and serving as skids for the entire structure. Six vertical pipes approximately 6 feet long are welded to the skids, and cross-braced to tie the skids together by means of the same type pipe. Tops of the vertical pipes have grooves into which are welded two horizontal pipes which comprise the principal tank rest. Between these two horizontal pipes are welded several cross pipes, binding top of the structure together and providing a wider area to support bottom.

A flooring of 2 x 12 planks is laid across the framework, and upon this the water tank is placed. Beneath the drain of the tank is a valve for flow control and below it is a flange to facilitate connection.

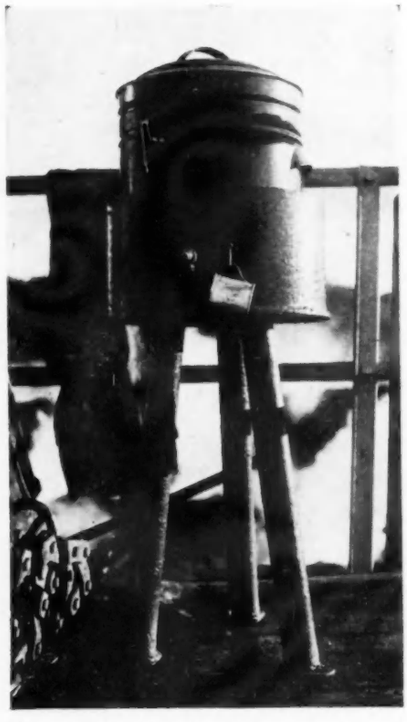
2. RIG ACCESSORIES

Water Cooler Support Protects From Wear

THE water cooler is a part of standard rig equipment which is thrown around and generally mishandled without regard for its damage or for the personal inconvenience of the drilling crew. One operator in Southwest Texas constructed a support for the cooler, giving it a permanent place during drilling operations, offering a convenience for drilling personnel and at the same time protecting the cooler from damage.

The container is set atop a circular steel plate about 24 inches in diameter welded in horizontal position to the tops of three legs made of 2-inch pipe cut in 3-foot lengths. To the top of the plate, a rim eight inches wide made of a piece of 24-inch pipe is welded, providing a socket inside which the cooler is placed. A slot is cut in one edge of the rim, about one inch wide and five inches deep, to provide opening for faucet. As the cooler is smaller in diameter than the inside of the socket, it is easily lifted over the rim and lowered in place, with the faucet slipping through the slot and protruding far enough to the outside to allow its manipulation. On each side of the nozzle are placed small steel hooks for holding the tin cups which are provided for drinking purposes.

Round plates welded to the bottoms of the legs are equipped with holes for fastening to the floor, and the device is erected at a convenient place for the crew where it will not interfere with rig operations.



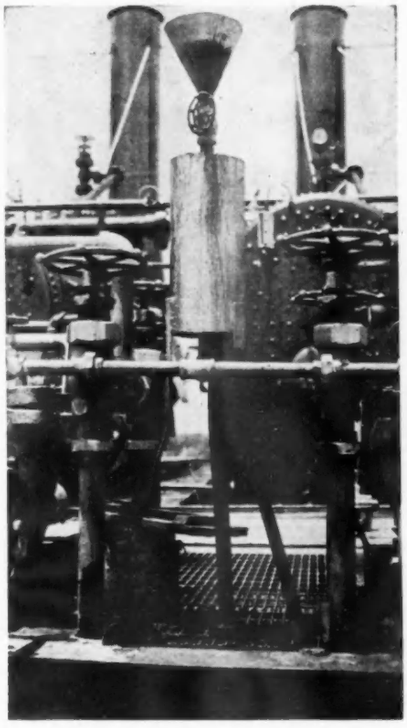
Pipe stand with plate base and formed retainer guard effectively enclose unit.

THE practical operating hints for the drilling rig and production man, appearing in these features each week, are secured from oil fields everywhere and offer suggestions that will help to improve field efficiency and safety. The items give an excellent picture of the remarkable ingenuity being exercised by the operating divisions of the industry. Contributions to these features will be paid for at the rate of $5 for each illustrated item accepted. Address contributions to "The Editor, THE OIL WEEKLY, Houston."

THE DRILLING RIG . . .

3. CHEMICALS

Feed-Water Chemicals Fed by Simple Device



Dispensing cylinder at water-control panel operates on lubricator principle for feed.

TREATMENT of boiler water is simplified by use of a container and feeder for chemicals, made of a short piece of pipe with ends sealed by welded circular plates. A piece of 6-inch pipe 18 inches long makes a serviceable container, and will hold sufficient chemicals to regulate treating over a considerable period.

The cylinder is mounted above height of the feeder pumps at convenient location between the pumps. Through the plates at top and bottom, holes are cut, with threads for connecting 1-inch pipe. At the top, a short nipple is inserted into top of the cylinder, equipped with a valve, above which is screwed a funnel. At bottom, a short nipple joins a tee fitted with 1-inch pipe, which in turn is directly connected with the water line before it enters the pumps. The two 1-inch lines are provided with valves which permit regulation of amount of chemicals flowing into water line. Chemicals poured into chamber through funnel fill the chamber, and its drainage and distribution are determined by valves on the 1-inch lines. Both may be open or closed, or either one may be open, to distribute the chemical as needed.

The device is mounted on a tripod constructed of steel strapping welded to floor and to the chamber, and the 1-inch pipes from the tee to feeder pumps are equipped with unions to facilitate connection.

4. CONTROLS

Valve Wheel Extension Assists Manipulation

STEAM valves or others which are difficult to manipulate because of tightness or awkward location may be operated by an elongated extension handle on the valve

Pipe handles, with ends split to engage spokes, permit easy valve regulation.

wheel. One fireman made such a handle, using a 4-foot joint of ¾-inch pipe. The lower end of the pipe was split for one inch in three separate places, and a wedge used to force the walls outward, making three prongs or fingers. Six inches from the top, the pipe was bent at a 90° angle, with the short horizontal section furnishing grip.

To regulate the steam valves, the fireman places the fingers between the spokes of the valve wheel and turns the entire apparatus. In this way, he is able to avoid close proximity with hot lines, at the same time putting on adequate pressure to open stubborn valves.

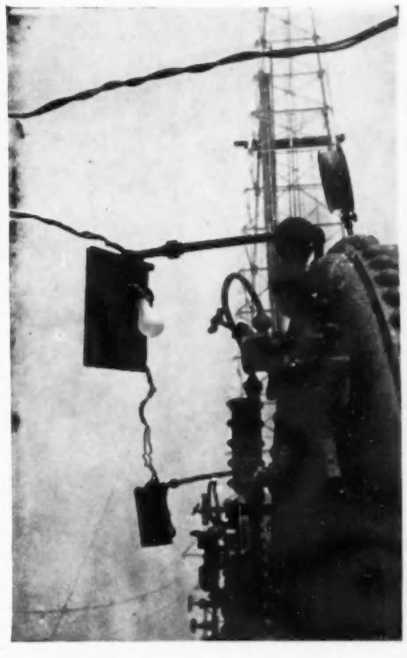
5. LIGHTING

Shield Permits Close Gauge Level Checking

SHIELDING of the gauge lights carried on each boiler to prevent their glare rendering hazardous any work around the units is accomplished on one rig by means of square shields, formed from light tank plate, mounted on short lengths of pipe and carried on brackets equipped with unions which connect with short extensions on the boiler fronts.

The guard carries a short sleeve to which is attached the socket for the light, the wires for current being carried within this sleeve. The entire unit, instead of being carried by the boiler on a move, is disconnected at the union, and the shield together with its attached light fixture, transported with the wiring harness.

The brackets not only carry the light shields or guards, but also act as transmission line supports.



Steel plate shield, adjustable on supporting arm, cuts light rays and carries wires.

4 Features that insure longer leak-proof service—

yours only with MISSION PLUG VALVES

1. **AUTOMATIC LUBRICATION**—Provides a constant lubricant seal • Line pressure automatically forces lubricant from reservoirs to sealing grooves • Eliminates necessity of frequent operation of lubricant screw • Ample downstream (sealing end) lubrication • Reduces friction—valve turns easily • Reduces wear and extends life of valve

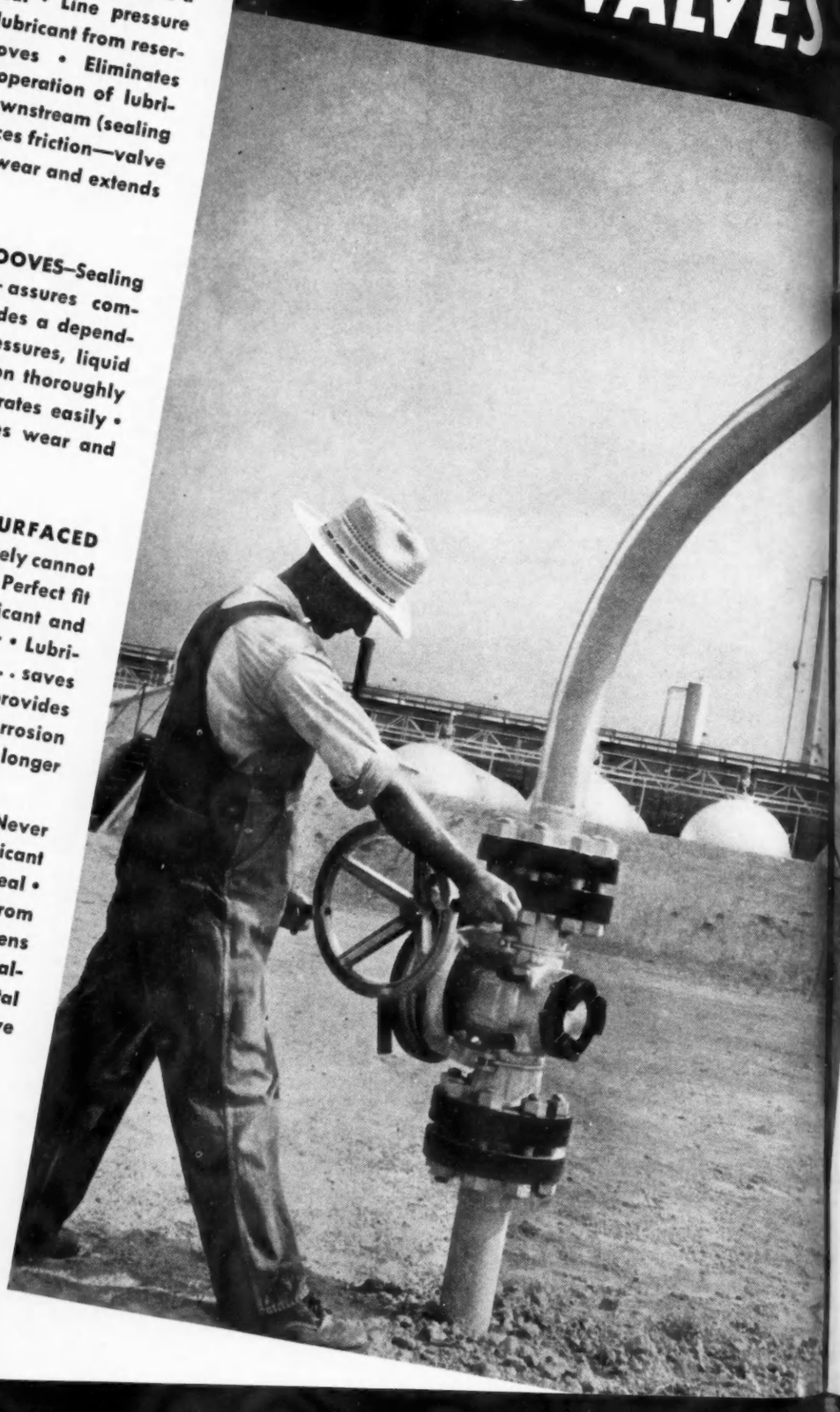
2. **FULL-PORT SEALING GROOVES**—Sealing grooves encircle ports — assures complete uniform seal • Provides a dependable seal against high pressures, liquid or gas • Full-Port Lubrication thoroughly lubricates core — valve operates easily • Reduces washouts • Reduces wear and extends life of valve

3. **WEDGE-PROOF SUPER-SURFACED CORE**—Cylindrical Core positively cannot wedge—permits easy turning • Perfect fit of core to body conserves lubricant and maintains leakproof seal longer • Lubricant lasts longer . . . saves time . . . saves valves • Super-Surfaced core provides extra resistance to abrasives and corrosion agents • Reduces wear — lasts longer

4. **SEALING GROOVES ON CORE**—Never exposed to fluid • Prevent loss of lubricant into fluid line . . . insures constant seal • Protects sealing grooves on core from direct cutting action of fluid • Lessens intrusion of abrasives into lubricant sealing grooves . . . reduces wear on vital sealing surfaces • Prolongs life of valve

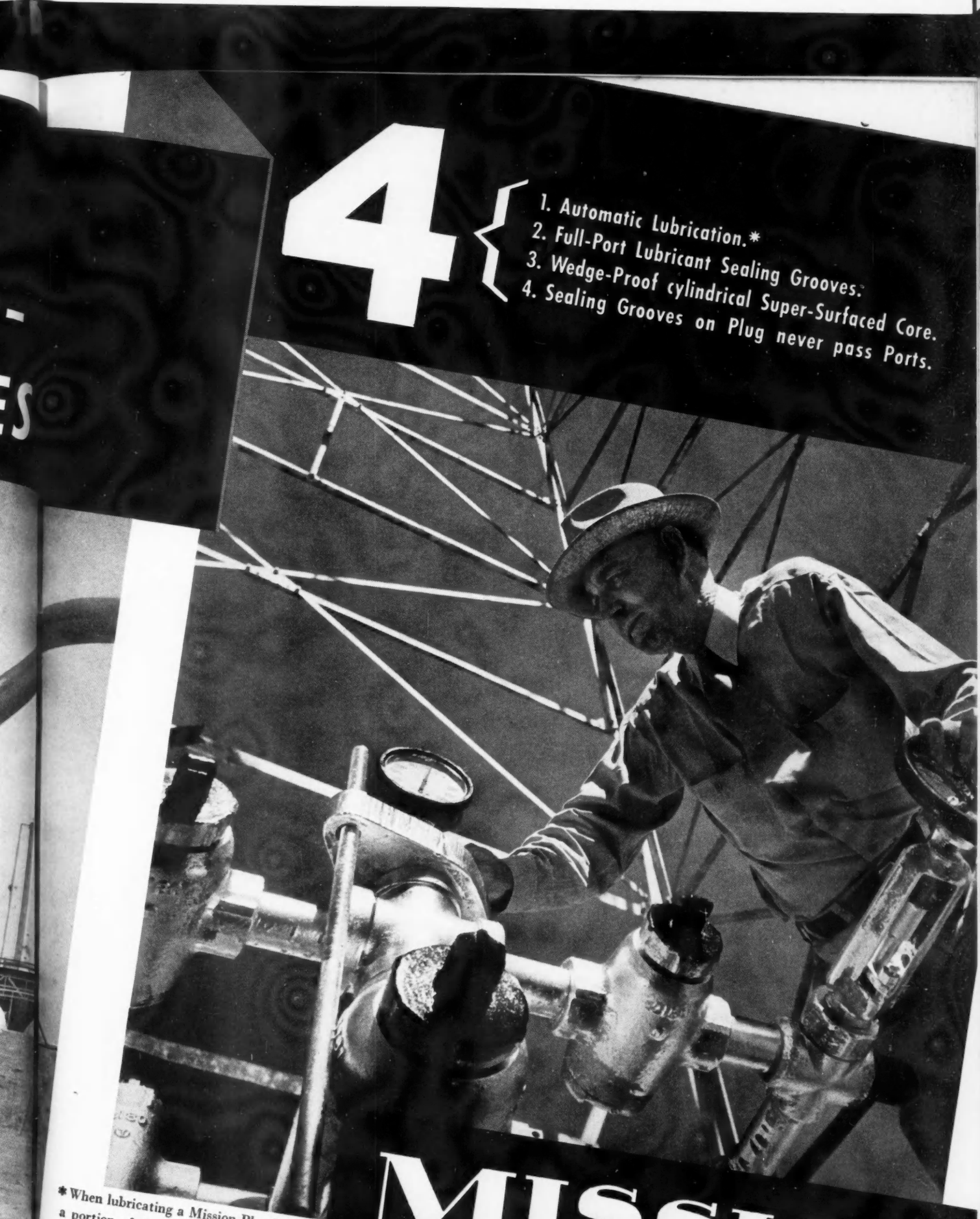
Leading drilling contractors and major oil companies have proven by actual competitive field tests that in all types of service Mission Plug Valves outwear and outlast other plug valves.

If you want to reduce plug valve problems — and save money — make your next plug valve a Mission.



4

1. Automatic Lubrication.*
2. Full-Port Lubricant Sealing Grooves.
3. Wedge-Proof cylindrical Super-Surfaced Core.
4. Sealing Grooves on Plug never pass Ports.



* When lubricating a Mission Plug Valve, a portion of the lubricant is forced into reservoirs. Thereafter, the line pressure AUTOMATICALLY feeds this stored lubricant, as needed, into the down-stream seal grooves. So long as lubricant remains in the reservoir a perfect seal is assured.

MISSION MANUFACTURING CO.

HUMBLE ROAD • HOUSTON, TEXAS
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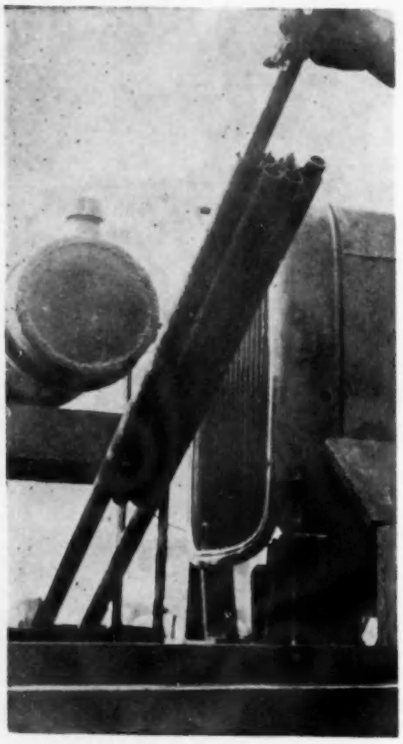
Practical Operating Hints for

1. TESTING

Pressure Bomb Units Carried in Protector



Unitized bundle of pipe sockets gives full enclosure to various components of device.

THE proper handling of the various parts or sections of the pressure bomb is one of the important factors that contributes to its accuracy in the subsequent bottom-hole pressure determination runs.

In the center of the small 4-wheeled flat bed trailer on which is mounted the wire-line reel and engine, the welder of one California company devised a method for safely holding and carrying the various delicate parts while traveling from well to well. A nest of four 3- to 4-foot lengths of 1-inch pipe is tack-welded together, and then flanked on either side by two 1¼- or 1½-inch pipes of nearly twice that length. Exact dimensions of any similar set-up would of course depend upon the make, size and type of bomb being used.

By means of brackets and a firm tie-down on the trailer bed, the assembly is mounted in approximately a 45-degree position. The upper and lower shell sections of the recorder are kept in the two outer tubes, while the pressure elements, thermometer sections, and thermal motors are placed in the center or smaller tubes.

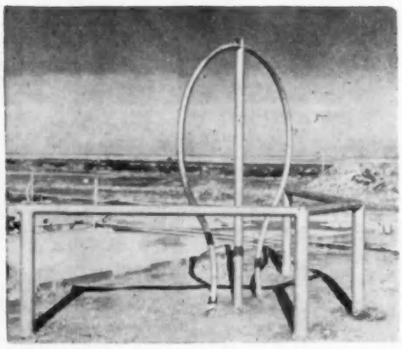
Waste or similar material placed in the bottom of the tubes provides a padded bottom for the various sections, and holds the top ends out just far enough to enable the operator to grasp them readily when the complete instrument is being made up. During rainy weather, an oilcloth or rubberized hood may be slipped over the exposed ends of the tubes to provide shelter.

2. LINE PROTECTION

Vertical Expansion Loop Guards Fittings

BECAUSE wide variations in the temperature cause considerable contraction and expansion of the lead lines it is necessary in some of the newer, higher pressure fields of California, to install expansion loops in the lines at or near the wells.

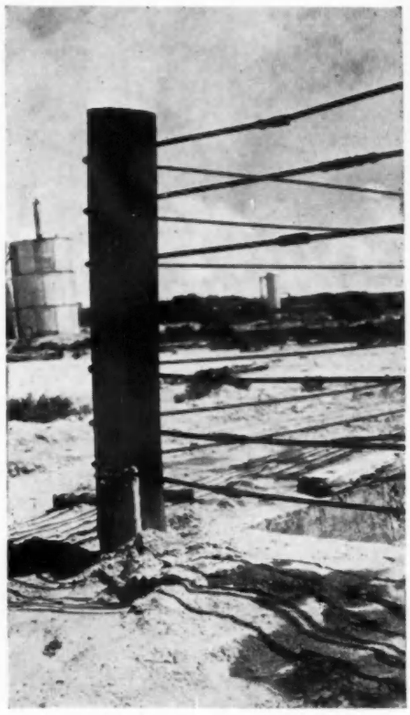
Instead of laying such loops horizontally on the surface of the ground, one company found it more advantageous to support them in an upright position. Carried by a vertical pipe set in the ground below the center of the loop, the pipe is free to expand freely in any direction. In this position, the line takes up less ground space, is easier to keep clean and painted, and there is less likelihood of a truck or other heavy piece of equipment running over the loop.



Protected against traffic hazard, this set-up absorbs full range of expansion changes.

3. ENCLOSURES

Sucker Rod Fencing Protects Well Site



Worn rods, bent to fit contours of corner posts, are welded to form stock-tight fence.

A SOUTH Texas operator uses sucker rods to advantage by erecting them for use as fencing around Christmas trees and cellar to protect wells from damage by trespassers or stray cattle. Located in a salty marsh flat, the corner posts are of heavy creosoted piling.

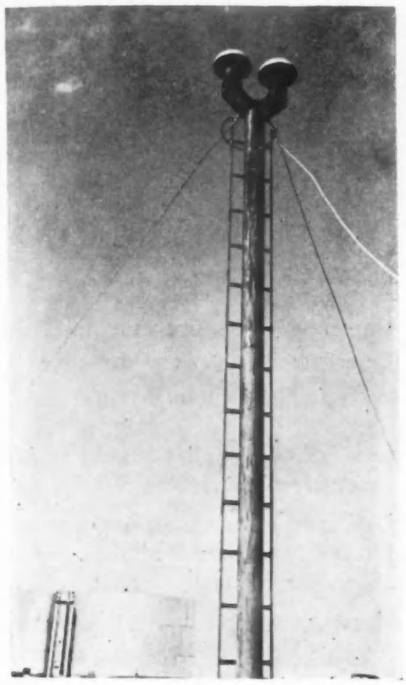
Sucker rods are screwed together at their regular connections, and ends cut off to proper lengths. They are bent around the pilings to conform with shape of the proposed fence or the enclosed area, and are drawn tight. The free ends are then welded together, the rods stretched taut between the pilings forming a barrier encircling the well head.

Several horizontal strands composed of sucker rods are used, spaced at intervals six or eight inches apart and comprising a fence about six feet high. This fence provides a formidable obstacle to persons attempting to enter the enclosure or molest the Christmas tree.

THE PRODUCTION MAN . . .

4. VENTING

Gas-Actuated Signal Indicates Flow Stop



Flap valves in dual vents actuate ringing mechanism and signal on bells any change.

IN SOME newer fields, where utility or gasoline plant facilities are not yet installed, waste gas must be vented to the air. This venting is particularly important and necessary at the centralized lease tank battery location where the highly explosive vapors must be conducted some distance away from the tanks, and there released to the air.

Some companies elect to burn these vapors, but one West Coast company has resorted to the unusual, but nevertheless practical use of two small bells mounted side by side on the top of their tank vent line. The escaping gas, under a pressure of several ounces or a pound, due to the slight back pressure of the small valves actuates the bell clappers.

The resulting two-toned jingling sound can be heard, under favorable conditions, for several hundred yards, and it is necessary only for the pumper or gauger to step outside his office to determine if the tanks are venting properly. The uninterrupted tinkling assures him that the vent line is free of obstructions such as might easily occur through the accumulation of oil or condensate in the line. The danger of a burst or injured tank caused by gas pressure building up is thereby materially lessened.

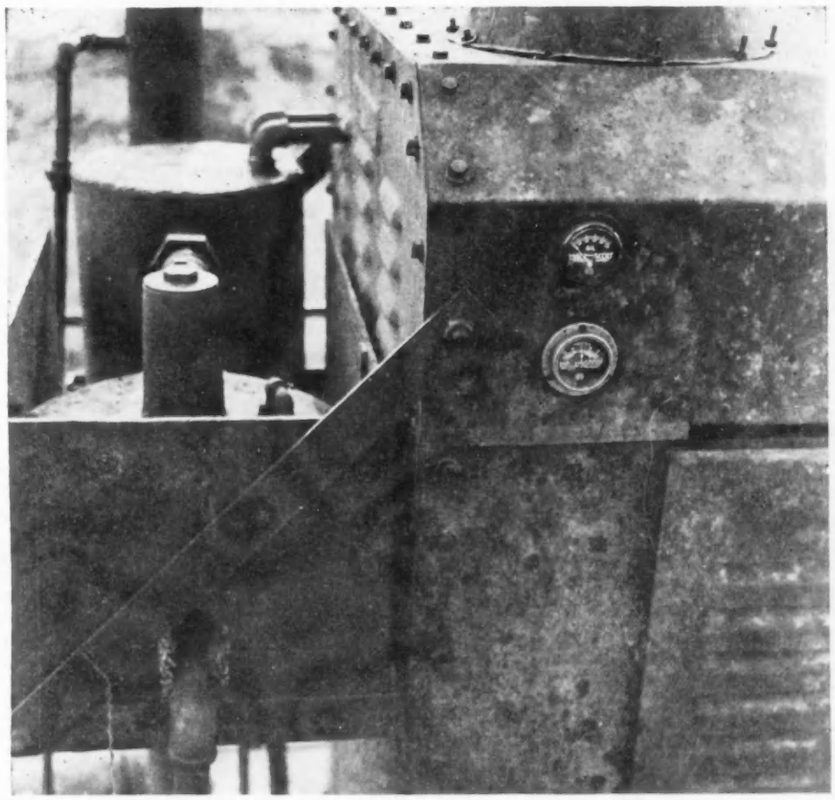
5. FUEL CONTROL

Engine Mounting of Unitized Gas System

ANY reduction in non-productive time usually consumed in the setting-up and breaking down operations of the well-pulling or hoisting unit is well worth striving for. Certain operations are essential and cannot be eliminated, but many of the smaller details of equipment handling, such as the engine fuel scrubber, pressure regulator, and connections to the engine intake are readily adaptable to short-cuts in setting up.

One California operator makes a definite saving by mounting fuel line accessories in an open steel box container, which in turn is bolted to the back of the engine hood. The small scrubber is made up out of a short section of "big-inch" casing. Both the scrubber and fuel pressure regulator are securely mounted in this container, and the fuel line, extending upward to this assembly, is permanently mounted in the skid-base frame of the pulling unit. Inside the hood, composition hoses are used to conduct the fuel to the dual-carburetor intake system.

When the unit is set up at the well, it is necessary only to connect up the union-equipped lower end of the engine fuel line to the field fuel line, an operation requiring but little time, since the regulator and scrubber are always ready for service on the engine itself. This contrasts with the time ordinarily consumed if the separate fuel units had to be laid out and separately conected up or mounted on another base.

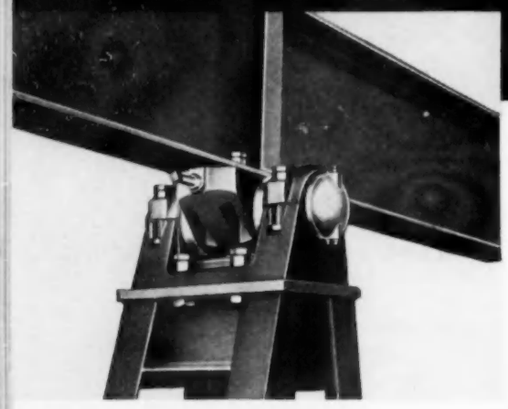


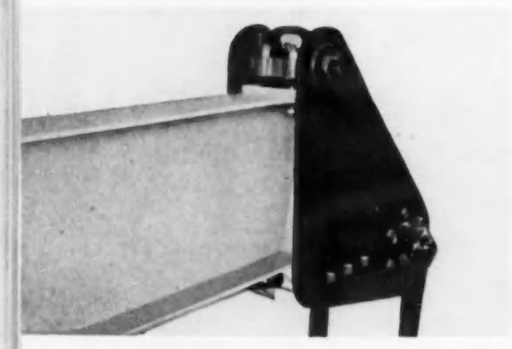
Gas scrubber and regulator are permanently mounted on engine hood and enable all fuel control to be carried with power unit without breaking more than one union or joint.

BETHLEHEM'S

BUILT-IN ALIGNMENT

prevents pumping headaches





ALL VITAL PARTS of Bethlehem Pumping Units are machined with precision accuracy to give you a smooth-working unit—to save you money. Check and see if your unit has these Bethlehem features:

Saddle machined for attachment to beams.

Samson Post top machined after welding for better alignment.

Unitary saddle housing fully machined to insure and preserve accuracy of bearing alignment. No separate bearing housings to get out of line.

No shims under saddle or posts. Machining of mating parts completely eliminates their need.

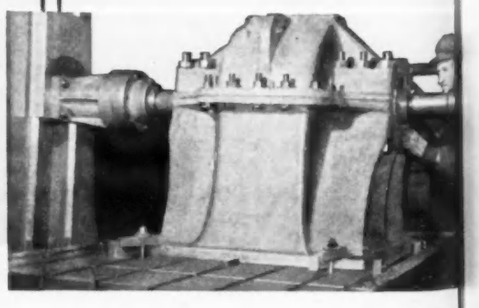
All beam hangers self-aligning, whether wire line or rigid, to compensate errors in setting of unit.

Gear reducers bored for shafts at single setting. No chance for machining misalignment.

Heavy, well-ribbed, rigid, cast semi-steel gear case reduces side deflection to a minimum.

Giant shafts for minimum deflection.

Roller bearings on all gear shafts insure and maintain accuracy of tooth contacts.



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FOR SERVICE

HIGHLIGHTS IN THE WEEK'S NEWS

Allowables

Texas Proration Schedule May Favor Special Grades

With the United States on a war-footing, the Texas Railroad Commission's statewide proration hearing set for December 15 takes on new significance. Commissioner Jerry Sadler again was in Washington last week, and undoubtedly will be fully advised concerning the outlook for Texas.

So far, neither Sadler nor Culberson has been willing to discuss the results of their visits to Washington, nor will they give out any information concerning the matters which they have discussed with federal officials.

However, it has become known that one of the most important points considered was the volume of crude oil available from which high-octane gasoline can be derived, and if any allowable changes are made during January, these fields are most likely to be affected.

Presumably, refineries depending on Texas oil are operating at capacity, and the members of the commission have indicated that if Washington approves, supplies of any oils needed will be made available immediately. However, no radical changes are expected immediately, unless and until a definite request from Washington is received.

About a month ago Deputy Petroleum Coordinator Ralph Davies advised the commission that a plan was forthcoming. Nothing more has been heard of this plan, but certainly it should be put into operation now, if it is ready.

Meanwhile, there is no indication that allowable increases will be made for oils other than high-octane crudes, save by further lifting of shutdown days. Low-cold-test crudes likewise are in demand, and for this reason may be included in any upward adjustments that are made.

Culberson Awaiting Washington Word

Commissioner Culberson said Friday that he would be guided in part by the recommendation of the Bureau of Mines. He pointed out that during the past few months the commission has invariably exceeded slightly the bureau estimates of consumer demand for Texas oil, a policy which was being followed generally by the other producing states.

With Sadler in Washington conferring with administration officials, no final conclusion could be reached before his return, Culberson said. While declining to be quoted further, Culberson made it clear that he has no intention of approving any program for "testing the market" or "testing the wells" now. Unless some radical departure from Texas proration methods is directly urged by official Washington, the policy now in effect will continue, so far as he is concerned. Culberson pointed out that Texas now is producing nearly half a million barrels daily more than it was producing at the same time last year. By using the formula, which has now been sustained by the state appellate courts, the commission has stabilized allowables for all fields and is gradually eliminating the shut-down day as a means of curtailing production to suit the market.

Undoubtedly, Culberson would be the first to sign an order calling for the production of more oil from any particular field if military, or civil officials directing military operations, should request it. But he has no intention of approving such increases to be used by some company for the purpose of obtaining a contract which might result from its superior buying position.

Culberson said he would like to see a higher price for Texas oil, a price that would contribute generally to the prosperity of the state and the development of the oil industry. But he has no intention of being party to a run-away program that might cause waste, which he believes would certainly cause instability "at a time when the great emergency has actually appeared."

When the shut-down days are eliminated (except to prevent abnormal pressure drops or water encroachment), then the commission will turn to its formula, change the prorations of the various grades of oil allowed as conditions warrant. Until these shutdowns are eliminated, no changes will be made except at the request of the authorities conducting the war.

Dirks Pressuring Approved

Operators in the Dirks field, Bee County, have been authorized to install a pressure maintenance project for the field. This permit is granted by the Texas Railroad Commission in an order issued recently.

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Associations

Committee to Study Functions of API

A committee on reorganization of the functions and structure of the American Petroleum Institute has been named by President William R. Boyd, Jr., with George A. Hill, Jr., Houston Oil Company of Texas, Houston, as chairman. The committee, which was authorized by the institute's board of directors at the recent meeting at San Francisco, will review and study the present functional activities and organizational structure of the institute and thereafter make any recommendations to the board which might appear desirable.

Members of the committee are J. A. Brown, Socony Vacuum Oil Company, New York; H. D. Collier, Standard Oil Company of California, San Francisco; O. D. Donnell, The Ohio Oil Company, Findlay; W. S. Farish, Standard Oil Company (New Jersey), New York; J. Howard Pew, Sun Oil Company, Philadelphia; W. S. S. Rodgers, The Texas Company, New York; E. G. Seubert, Standard Oil Company (Indiana), Chicago; H. F. Sinclair, Consolidated Oil Corporation, New York; W. G. Skelly, Skelly Oil Company, Tulsa, and R. G. A. van der Woude, Shell Union Oil Corporation, New York.

East Texas API Group Elects 1942 Officers

J. W. Pittman, Shell Oil Company, was elected chairman of the East Texas Chapter of the American Petroleum Institute at Kilgore, December 9. B. W. Roberts, H. L. Moore and W. H. Wiginton were elected vice chairmen, Jay Coleman, secretary and treasurer, and R. F. Stern, assistant secretary and treasurer. The officers will serve in 1942.

E. B. Miller, Jr., was named chairman of the advisory committee. Members are M. L. Brown, S. C. Moor, Don M. Kerr, R. J. Dodson, W. M. Rush, J. B. Wells, B. E. Moir, Ira Page, M. E. Zollar, Dick Faucett, C. E. Tabor, R. D. Risser, J. R. Dougherty, C. P. Porter, J. E. Springer, W. S. Morris, H. A. Clark, J. P. Straight, Floyd Brett.

M. T Hays is chairman of the membership committee. L. P. O'Neal is chairman of the program committee.

Large Deals in Producing Properties in Texas

An unusual volume of trading in producing properties has occurred this month in Texas through smaller units disposing of joint interests and outright purchases by large operators. Demand for producing leases is greater than for any period since the last war.

Stanolind Oil & Gas Company, largest buyer in the southwest, is paying in excess of $4,000,000 cash to Landreth Production Corporation for West Texas and New Mexico properties. This deal involves full interest in 22 wells and

half interest in 170 wells. Landreth retains undeveloped leases.

Tide Water Associated Oil Company added to its holdings in the K-M-A field, North Texas, through the purchase of Perkins and Cullum's half interest in the following leases: Bradley 179 acres with 2 wells; Ferguson 450 acres with 23 Strawn and 8 Ellenberger wells; Mangold 256 acres with 13 Strawn wells; Chas. Pettit 417 acres with 29 Strawn and 16 Ellenberger wells, and Pettit-State 41 acres with 3 Strawn and 2 Ellenberger wells. Consideration reported to be in excess of $1,500,000. Tide Water entered the field September 1939, through purchase of King Oil Company's half interest in above leases for $1,500,000, and Ellenberger development followed.

States Oil Corporation paid Robert W. McKissick $187,500 cash for latter's half interest in Robertson & McKissick's 16-well property in the Novice pool, Coleman County.

General American Oil Company paid $499,275, including $100,000 cash, for Chas. Pettit's interest in Fenn 17.6-acre tract, 8 wells, and the Findley-Thomas 6.66-acre tract, 3 wells, in the East Texas field.

Sale of 92½ percent of the capital stock of King Oil Company, substantial producer in North Texas and Texas Panhandle, to Pan Oil Company of Pittsburgh, for $7,500,000 is scheduled to be concluded before the end of the year.

E. H. Moore, Inc., has disposed of major production in the Fitts field of Oklahoma to four associates. Some 3900 barrels of daily production, developed from 1935-38 is involved, part interest not being affected. Levi Ackley, production superintendent since early development of the field, G. M. Welling, secretary-treasurer, Villard Martin, attorney, and C. V. Wilcoxson, management secretary, are the purchasers. Ackley and Welling will operate the property from field offices.

E. H. Moore, head of the corporation, holds extensive production in Kansas with important wells at Zenith. He retains these and other operations and will continue to devote his time actively to exploration and development of properties.

New Owners to Operate Refinery at Arp

Operating control of Independent Refining Company, owner of a 3500-barrel refinery at Arp, and Cordova Gathering System, which connects the plant with East Texas field properties, has been acquired by Fred Sklar and Sam Dorfman. New owners have 1600 barrels of controlled production. Contract made to supplement this supply with oil to be gathered by Longview Gathering System at 5 cents per barrel tariff. Connections were obtained early this month to 83 wells upon the payment of 5 cents per barrel bonus to independent producers.

Government Income From Public Lands $7,000,000

Federal income from mineral production from public and Indian lands and the naval petroleum reserves amounted to approximately $7,000,000 during the fiscal year 1941, it was reported November 19 by the Geological Survey. Total value of production was $71,000,000, it was said.

Washington Roundup

[*Continued from page 16*]

Company of New Jersey, New York; W. H. Ferguson, executive vice president of Continental Oil Company, Denver; George A. Hill, Houston Oil Company, Houston.

William F. Humphrey, president of Tide Water Associated Oil Company, San Francisco; J. C. Hunter, president of the Mid-Continent Oil and Gas Association, Tulsa; W. A. Jones, president of Cities Service Company, New York; B. L. Majewski, vice president of Deep Rock Oil Company, Chicago; Henry D. Moyle, vice president of Wasatch Oil & Refining Company, Salt Lake City; I. A. O'Shaughnessy, president of Globe Oil & Refining Company, Wichita; J. R. Parten, chairman of Premier Oil Refining Company, Houston; J. Howard Pew, president of Sun Oil Company, Philadelphia.

Frank Phillips, chairman of the board of Phillips Petroleum Company, Bartlesville; W. S. S. Rodgers, president of The Texas Company, New York; E. E. Pyles, vice president of Hancock Oil Company, Long Beach, Cal.; Charles F. Roeser, Roeser & Pendleton, Fort Worth; H. F. Sinclair, chairman of the Consolidated Oil Corporation, New York; Lawrence Vander Leck, president of the Oil Producers' Agency, Los Angeles; R. van der Woude, president of Shell Union Oil Corporation, New York; A. L. Weil, Los Angeles, and E. G. Seubert, president of Standard Oil Company (Indiana), Chicago.

Prior to the opening of the conference, acceptances had been received from 65 of the 68 men invited to serve, the only invitations which had not been formally accepted up to that time being those to Jacob France, president of Mid-Continent Petroleum Corporation, Tulsa; Will J. Reid, president of Hancock Oil Company, Long Beach, and D. J. Moran, president of Continental Oil Company, Houston.

In executive session, the council perfected its organization so far as it could and decided to meet again on January 5. Chairman Boyd, in the meantime, was instructed to employ a secretary. No decision was made as to the headquarters of the council, but it is expected they will be located in Washington.

Production

A marked increase in the allowable production of the Texas fields producing crudes suitable for aviation gasoline purposes is expected to be ordered by Coordinator Ickes within the next few days.

Moving to put the industry on an all-out war basis, the Coordinator this week again conferred with Jerry Sadler, Texas Railroad Commissioner, regarding the aviation-crude situation and is understood to have agreed that production from aviation-crude pools should be expanded immediately. Texas produces about 90 percent of the crudes suitable for 100-octane gasoline.

Despite the expansion of production all along the line, however, the civilian consumption of gasoline is expected to be ordered curtailed sharply in the near future, particularly in the East where a transportation shortage again looms as a result of transfers of tankers to West Coast service.

Officials in Washington were frank to say they expected that consumers would get less gasoline and poorer gasoline as a result of the restrictions which are planned, but added that every effort would be made to keep moving an adequate supply of both household heating oil and heavy industrial oils.

The January forecast of demand of the Bureau of Mines, scheduled to be issued within ten days, is expected to provide for marked increases in crude oil production in practically every state, and curtailment of consumption will be due not to a shortage of crude oil but to the diversion of refinery facilities to aviation-gasoline production and the shift of tankers.

North Texas Prices

One month to the day after three large buyers of North and North Central Texas crude oil withdrew their proposal to eliminate the differential in favor of Oklahoma oil, the Office of Price Administration on December 11 approved a reduction in that differential from 7 to 4 cents per barrel.

On the present price basis for

crude of 40 gravity and above, the quotations for North and North Central Texas oil would be increased from $1.18 to $1.21 per barrel, compared with $1.25 per barrel for Oklahoma.

The narrowing of the differential was made applicable to Archer, Baylor, Brown, Callahan, Clay, Coleman, Cooke, Eastland, Foard, Jack, Montague, Palo Pinto, Shackelford, Stephens, Wichita, Wilbarger and Young Counties.

OPA Administrator Leon Henderson explained that the action was taken after study of transportation costs and other factors. He pointed out that in recent years the volume of production in North and North Central Texas has increased to a point where a substantial amount of oil moved both north and south to distant refineries, whereas formerly it was largely refined locally. At the same time, with this change in condition, there has been a relative reduction in Oklahoma production, while demand for both Texas and Oklahoma oil has been increasing.

"This action should not be construed as indicative of OPA policy on the general crude-price question, now the subject of an independent study," Henderson warned.

Tetraethyl

Taking the position that any sharp reduction in the use of lead in gasoline would work a hardship on small refiners dependent upon the metal to bring their gasoline up to marketable standards and, by reducing the mileage secured, place an additional burden on both refining and production, among other things, chairmen of the district refining and marketing committees urged OPM officials December 9 to explore the possibilities of increased production as an alternative to curtailment of consumption of tetraethyl lead.

The industry group maintained there was no reason for a drastic cut in lead consumption, asserting that production could be increased from marginal mines, and that the proposed OPM restrictions would result in the production of inferior gasoline 5½ octane points below present standards, costing the motoring public from $125,000,000 to $250,000,000 a year.

Gasoline consumption would be increased 10 percent by a reduction in lead use, imposing an additional strain on already over-burdened refineries and requiring increased production, it was contended.

The committeemen urged that OPM approve the use of 210,000,000 pounds of tetraethyl lead in 1942, the normal production originally projected, and urged that they be permitted to select a subcommittee to confer with OPM officials before any definite action is taken and that, if a cut is ordered, a 60-day breathing spell be given the industry to prepare for the new conditions.

Drilling Costs

Continuance of the former system of permitting oil companies to deduct costs incurred in the drilling of wells by independent contractors appeared probable this week as internal revenue bureau officials pored over what was said to be the final draft of a legal memorandum on the subject.

The matter was again the subject of discussion between Senator Tom Connally of Texas and Commissioner Guy Helvering, with the Senator taking the position that the former practice of permitting such deductions can be continued, despite the decision of the Board of Tax Appeals in the Retsal case, because the issue is on appeal.

Senator Connally told the commissioner that if the courts uphold the board, he will introduce legislation to clarify the situation. The formal action of the bureau is expected to be announced early next week.

Cost Study

Price Administrator Leon Henderson during the week disclosed that the Tariff Commission is making a comprehensive study of crude oil production costs *(reported in* The Oil Weekly, *November 10)* to assist the OPA in formulating price policies.

Questionnaires have been sent out to some 10,000 crude oil producers accounting for an estimated 95 percent of the national production, and an invitation has been extended to any producer who does not receive a copy to write in to the commission for one.

Producers have been asked to get their completed questionnaires in not later than January 31, next, but it is hoped that much of the data will be submitted before that date so that the study may be expedited.

Cole Committee

Another year of life was granted the Cole committee by the House of Representatives December 10, acting on a unanimous request from the committee that its authority to investigate the petroleum situation be continued until January 3, 1943.

There was no debate on the request, Representative William P. Cole, Jr., chairman of the committee, explaining that it was important the group continue its studies, as a result of which (under the Cole pipe line act) one important pipe line has been completed and two others are being built.

"If there ever was a time Congress should keep advised as near up to the minute as possible as to the condition of our petroleum industry it is now," he told the House. "Do not be surprised if you find the war to be one for the possession of oil more than for anything else."

The present committee was authorized in August, 1939, at the request of President Roosevelt, to bring up to date the studies of the oil situation which it made in 1934 and 1935.

Clarification

Apparently spurred by criticism of his recent refusal to discuss price matters with trade associations, Price Administrator Leon Henderson this week agreed that such organizations could perform a valuable service in collecting information necessary for a proper determination of prices and gave assurance that such material would be welcomed.

In a letter to Frank Buttram, president of the Independent Petroleum Association, who had protested Henderson's assertion that it was not his policy to deal with associations on prices, the OPA chief made it clear that his position was based on Department of Justice policy and assured the IPA head that "we do not intend to restrict the ability of your people to present their case to this agency."

"The primary consideration in my mind is that OPA should not use a trade association as the alter ego or representative of the industry," Henderson explained. "For example, if we wished to issue a notice or request concerning prices which should not be exceeded, we would not handle the matter by merely notifying the trade association.

North Texas Crude Raised; General Advance Advocated

Markets continue strong, and hopes for government approval of a general advance of crude prices were stimulated through action late last week in connection with prices in North and West Central Texas. Following approval by the Office of Price Administration, postings for those areas were increased 3 cents a barrel by major purchasers, under leadership of Stanolind Crude Oil Purchasing Company.

It was made clear by the price-control agency, however, that the approval extended only over those areas and should not be regarded as a signal for a general increase. The advance was permitted after study by the government of data on the relationship between prices in North Texas and in Oklahoma and Kansas, and the decision to permit the adjustment recognized validity of contentions that changed market conditions required narrowing of the former 7-cent differential between postings in the two regions.

However, the allowed increase did not eliminate the differential, as major oil purchasers sought to do November 6, whereupon OPA ordered that 7-cent advance rescinded.

Price Administrator Leon Henderson said that approval of a 3-cent increase for North and West Central Texas was based on a study of transportation costs and other factors affecting the marketing of crude oil and products in those districts.

Stanolind's new schedule for the areas lists crude below 21 gravity at 81 cents a barrel and shows a 2-cent differential upward to a top price of $1.21 a barrel. Magnolia Petroleum Company's schedule begins with 97 cents a barrel for crude below 29 gravity and by 2-cent differential per degree of gravity extends upward to $1.21 for 40 gravity and above.

Oil company spokesmen continue to insist that better crude oil prices are needed to encourage wildcatting and the discovery of new oil fields, maintaining that an advance of 25 to 50 cents a barrel will be needed to draw forth important discoveries.

Adding strength to the markets last week was the realization that active participation in the war will put additional strain on the tanker transportation facilities, with some ships scheduled to be transferred out of Gulf-Atlantic service to use on the West Coast.

Meanwhile, difficulties over obtaining sufficient natural gasoline and tetraethyl lead are running up costs for refiners and causing need for higher prices of refined products, which cannot be asked under price-control restrictions.

If and when crude prices are allowed to move upward, refined product prices in fairness to refiners also will have to be permitted to advance.

Trends of Operations and Changes in Stocks

Figures are from American Petroleum Institute weekly reports, except those on crude stocks, which are from Bureau of Mines weekly reports

WEEK ENDED	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	FUEL OIL STOCKS	
					Gas Oil & Dist. Fuels	Residual Fuel Oil
1939:						
April 22	3,526,700	3,280,000	277,156,000	[2]87,769,000	21,085,000	105,035,000
April 29	3,568,200	3,405,000	278,440,000	86,794,000	[7]25,844,000	[7]108,409,000
May 6	3,580,900	3,275,000	[2]278,607,000	86,216,000	26,167,000	108,597,000
August 5	[1]3,909,400	3,445,000	268,982,000	76,431,000	35,601,000	114,512,000
August 26	[1]1,690,800	3,475,000	246,982,000	73,475,000	37,722,000	116,237,000
October 7	3,435,850	3,505,000	231,564,000	[6]71,152,000	38,549,000	114,397,000
October 21	3,771,550	[3]3,650,000	[3]229,127,000	72,122,000	39,358,000	115,060,000
1940:						
January 27	3,611,600	3,470,000	237,339,000	87,914,000	27,407,000	103,015,000
February 24	3,732,100	3,490,000	240,836,000	96,719,000	25,390,000	103,419,000
March 30	3,841,250	3,585,000	250,561,000	101,370,000	23,778,000	105,081,000
April 20	3,858,550	3,535,000	254,881,000	[1]102,817,000	24,779,000	103,323,000
April 27	3,845,250	3,555,000	256,670,000	102,452,000	24,997,000	102,552,000
May 25	3,835,650	3,580,000	259,330,000	100,297,000	28,356,000	104,015,000
June 22	3,846,450	[3]3,690,000	260,891,000	97,276,000	32,751,000	104,683,000
June 29	3,639,550	3,625,000	262,059,000	95,142,000	33,590,000	104,486,000
July 27	3,690,400	3,555,000	262,579,000	90,173,000	38,981,000	105,924,000
August 31	3,501,350	3,575,000	265,865,000	85,393,000	44,766,000	108,774,000
September 28	3,799,950	3,600,000	263,609,000	82,273,000	47,986,000	108,450,000
October 26	3,640,300	3,565,000	262,746,000	80,891,000	48,893,000	108,475,000
November 9	3,584,200	3,510,000	261,631,000	[6]79,847,000	48,408,000	107,687,000
November 30	3,335,050	3,510,000	262,679,000	80,284,000	46,212,000	106,618,000
December 28	3,385,500	3,585,000	261,552,000	83,274,000	42,266,000	102,620,000
1941:						
January 25	3,599,100	3,625,000	260,093,000	88,762,000	39,039,000	100,297,000
February 22	3,629,650	3,590,000	261,783,000	95,812,000	34,381,000	98,631,000
March 29	3,746,550	3,625,000	266,187,000	[2]99,727,000	29,949,000	96,152,000
April 26	3,726,850	3,675,000	266,149,000	96,647,000	29,543,000	94,732,000
May 31	3,786,100	3,699,000	262,356,000	93,845,000	33,524,000	92,757,000
June 28	3,847,250	3,930,000	259,399,000	91,461,000	35,732,000	92,896,000
July 12	3,870,750	4,090,000	255,567,000	89,561,000	37,812,000	92,699,000
August 2	3,695,250	3,845,000	252,535,000	86,779,000	41,433,000	94,800,000
August 30	4,004,700	4,070,000	249,413,000	81,672,000	45,351,000	95,052,000
September 27	4,060,000	3,980,000	246,649,000	81,003,000	49,950,000	95,251,000
October 4	3,860,750	4,015,000	246,144,000	[6]80,870,000	49,553,000	96,016,000
October 18	4,110,550	[4]4,120,000	243,605,000	82,584,000	52,403,000	95,800,000
October 25	4,098,800	4,060,000	242,261,000	83,343,000	53,183,000	95,295,000
November 1	4,071,200	4,080,000	243,340,000	83,223,000	53,766,000	96,527,000
November 15	4,086,850	4,010,000	240,399,000	83,412,000	[2]54,983,000	95,993,000
November 22	[4]4,336,850	3,995,000	241,956,000	84,579,000	54,396,000	95,982,000
November 29	4,086,000	4,115,000	242,884,000	85,525,000	54,141,000	95,971,000
December 6, 1941	4,107,950	3,945,000	.....	86,356,000	53,946,000	95,342,000
December 6, 1940	3,612,600	[8]3,457,000	[4]262,679,000	80,351,000	44,977,000	103,657,000
Amount of change in past year	+495,350	+488,000	—19,795,000	+6,005,000	+8,969,000	—8,315,000
Percent change in past year	+13.7	+14.1	—7.5	+7.5	+19.9	—8.0

[1] All time peak. [2] Peak for year. [3] Lowest since April, 1922. [4] Stocks, November 30, 1940.
[5] Lowest since October, 1922, due to shut down of six Mid-Continent states. [6] Lowest for year.
[7] Prior to April 29, 1939, data did not include stocks at terminals, in transit, etc., except in California.
[8] December, 1940, daily average.

Crude Production and Runs 14 Percent Above Year Ago

The industry's operations continue exceptionally active, with crude oil production and refinery runs not far under all-time highs, although there was a considerable reduction in crude runs to stills in the latest week for which statistics are available, that ended December 6.

From the average of 4,115,000 barrels daily in the week ended November 29, which was only 5000 barrels under the all-time peak, the refinery runs in the United States were cut back to 3,945,000 barrels daily in the week ended December 6, with 90.1 percent of the rated plant capacity utilized. The runs were nevertheless 488,000 barrels (14.1 percent) higher than they were on the average in December of last year, at 3,457,000 daily.

Runs to stills in the week of December 6 were above 90 percent of capacity in the East Coast, Appalachian, Indiana-Illinois-Kentucky, Texas Gulf Coast, Louisiana Gulf Coast, and North Louisiana-Arkansas districts. They were around 75 percent of capacity in Oklahoma-Kansas-Missouri, Inland Texas, and California, and at 55 percent in the Rocky Mountains.

Crude oil production averaged 4,107,950 barrels daily in the week ended December 6, up from the previous week but about 30,000 less than market demand. The output was 495,350 barrels (13.7 percent) above that in the corresponding week last year, which amounted to 3,612,600 daily.

Around 14 percent higher than at this time last year, both production and refinery runs of crude oil are being maintained at levels commensurate with current record-breaking demand. Stocks of the major refined products, consequently, are reacting favorably. Storage of finished and unfinished gasoline was increased from 85,525,000 to 86,356,000 barrels in the week ended December 6, an increase about the same as that in the corresponding week last year. The new total was 6,000,000 barrels above that of 80,351,000 barrels reported for December 6 last year, an increase of 7.5 percent. The only areas where gasoline

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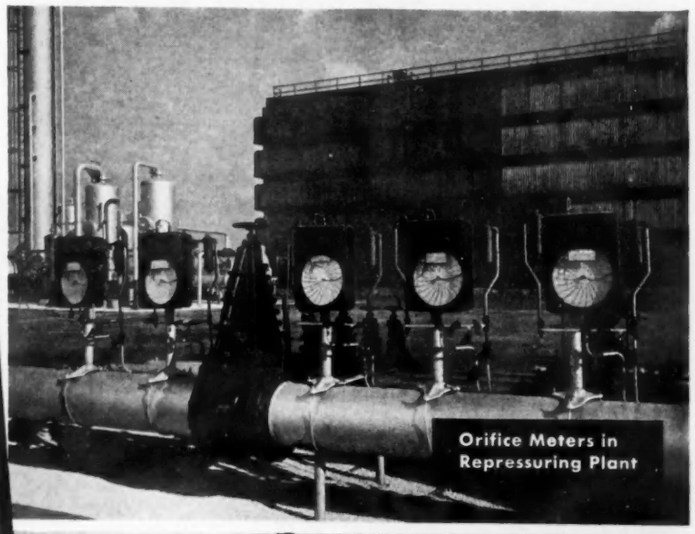
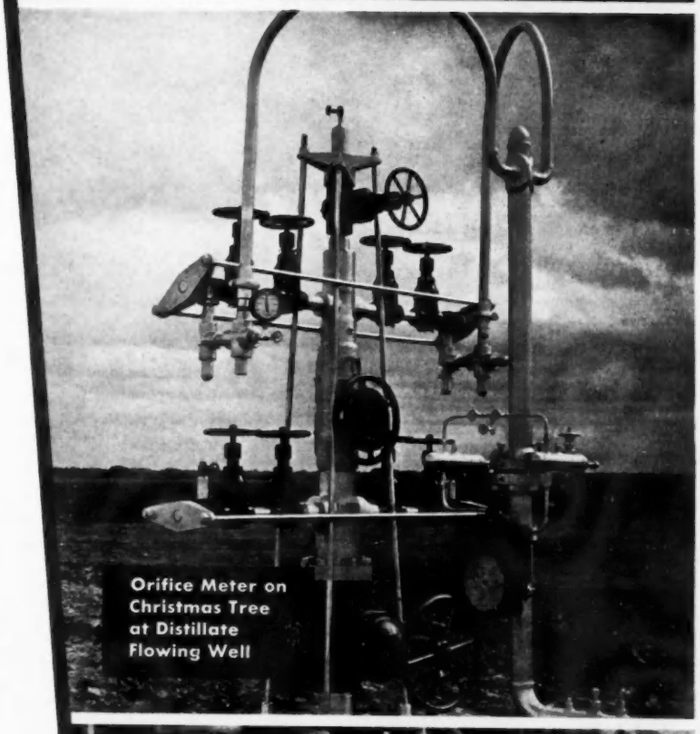
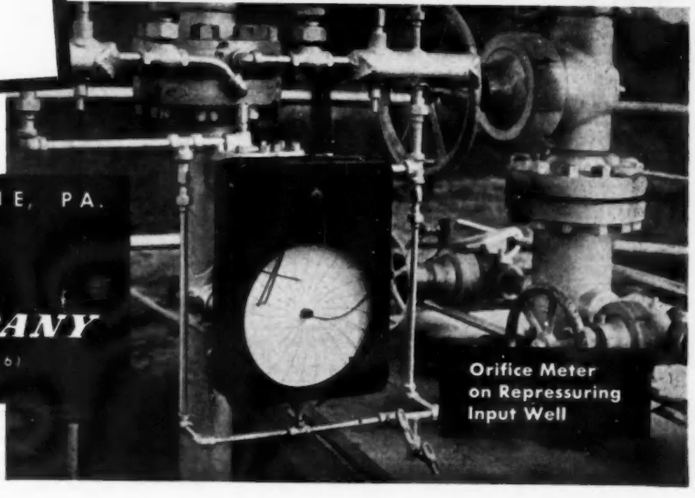


Orifice Meters in Repressuring Plant



Orifice Meter on Christmas Tree at Distillate Flowing Well



Orifice Meter on Repressuring Input Well

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Wholesale Prices of Refined Products in Principal Markets

	Range Last Week (Cents a Gal.)		Changes from Week Before	
REFINED GASOLINE				
Oklahoma Refineries:				
60 Octane and Under	5¼	5⅝	...	...
63-66 Octane	5⅝	6	...	...
72-74 Octane	6	6⅜	...	...
80-82 Octane, Ethyl	6¾	7½	...	...
Mid-Western Tank Car:				
60 Octane and Under	5¼	5⅝	...	...
63-66 Octane	5⅝	6	...	...
72-74 Octane	6	6⅜	...	...
80-82 Octane Ethyl	7⅛	7⅝	...	...
New York Harbor:				
68-70 Octane	8	8	...	...
72-74 Octane	8	8⅛	...	...
Min. 80 Octane, '39 Research	8½	9	...	...
Gulf Coast:				
60 Octane unleaded	5⅝	5⅝	...	...
65 Octane unleaded	5⅞	5⅞	...	...
68 Octane unleaded	6¼	6¼	...	...
70 Octane unleaded	6¼	6½	...	+⅛
72-74 Octane leaded	...	...	...	...
Min. 80 Octane, '39 Research	6½	6½	...	...
NATURAL GASOLINE				
Grade 26-70:				
F.O.B. Group 3	5⅛	5⅛	...	...
F.O.B. Br'kenr'ge, Tex.	4¾	4¾	...	...
KEROSENE				
Oklahoma Refineries:				
41-43 water white	4⅝	4⅝	...	...
42-44 water white	4⅞	4⅞	...	...
Mid-Western Tank Car:				
41-43 water white	4⅝	4⅝	...	...
42-44 water white	4⅞	4⅞	...	...
New York Harbor	5⅝	5⅛	...	...
RANGE OIL				
At Oklahoma Refineries	4	4⅜	...	...
In Mid-Western Market Group 3, basis	4	4¼	...	...
LIGHT FUEL OILS				
Oklahoma Refineries:				
No. 1 straw	3⅛	4¼	...	...
No. 2	3⅛	3⅝	...	...
Mid-Western Tank Car:				
No. 1 white	3⅞	4¼	...	...
No. 2	3½	3¾	...	...
New York Harbor:				
No. 1	5⅜	5½	...	...
No. 3	5¼	5¼	...	...

	Range Last Week (Per Bbl.)		Changes from Week Before	
HEAVY FUELS				
Oklahoma Refineries:				
No. 6	$0.90	$0.90	...	...
Mid-Western Tank Car:				
No. 5	.85	.85	...	...
No. 6	.85	.87½	...	...
New York Harbor:				
No. 5	1.65	1.75	...	...
No. 6	1.35	1.50	...	...
BUNKER C FUEL OIL (Per barrel, ships' bunkers)				
Gulf Coast	$0.85	$0.95	...	...
New York Harbor	1.35	1.50	...	...
DIESEL OIL (Per barrel, ships' bunkers)				
Gulf Coast	$1.65	$1.80	...	...
New York Harbor	2.15	2.15	...	...
LUBRICATING OIL (Cents a gal.)				
Oklahoma Refineries:				
Bright Stock, 150-160 viscosity at 210°, 10-25 pour test	22½	23	...	...
Neutral oil pale No. 3 Color, 150 viscosity at 100°, 0-10 pour test	14½	14⅛	...	...
Western Pennsylvania:				
Bright Stock, 145-155 viscosity at 210°, 25 pour test	26	26	...	...
Neutral Oil No. 8 Color, 150 viscosity at 70°, 25 pour test	31	31	...	...

stocks are lower than a year ago are the Texas Gulf Coast (12,206,000 barrels now against 12,923,000) and California (15,516,000 against 15,852,000). The East Coast has 2,000,000 barrels more than a year ago, holding 19,421,000, and the Indiana-Illinois-Kentucky practically 2,000,000 barrels more with a total of 15,539,000. Oklahoma-Kansas-Missouri shows an increase of 1,336,000 barrels in holding 7,945,000 barrels of finished and unfinished gasoline.

Stocks of gas oil and distillate fuel were reduced subnormally in the week ended December 6, from 54,141,000 to 53,946,000 barrels, this withdrawal of about 200,000 barrels having compared with one of 1,800,000 barrels in the corresponding week last year. The present inventory is approximately 9,000,000 barrels (20 percent) larger than that held a year ago, with the East Coast accounting for over 6,000,000 barrels of the increase and California for 3,000,000 barrels, while changes in other districts compensate for each other. Gains in the Appalachian, Indiana-Illinois-Kentucky, Oklahoma - Kansas - Missouri, Inland Texas, and Coastal Louisiana districts are offset by decreases of 1,357,000 barrels on the Texas Gulf Coast and a slight reduction in North Louisiana-Arkansas, while the Rocky Mountain district stocks are unchanged.

United States stocks of residual fuel oil were reduced about 600,000 barrels in the week ended December 6, with the East Coast accounting for almost 400,000 barrels of the reduction, while there was a withdrawal of 160,000 barrels in the Indiana-Illinois-Kentucky

United States Crude Oil Production Higher

Estimates Compiled by The OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Estimate of Daily Demand (Dec.)	State Allowable (Barrels Daily in Dec.)	BARRELS DAILY FOR WEEK ENDED Dec. 6	Dec. 13
TEXAS:				
Texas Panhandle	.....	.....	98,800	88,000
North Texas	.....	.....	108,400	108,200
West Central Texas	.....	.....	31,500	31,500
West Texas	.....	.....	290,100	291,400
East Central Texas	.....	.....	86,500	84,500
East Texas Field	.....	.....	370,200	369,500
South Texas	.....	.....	217,300	216,300
Texas Gulf Coast	.....	.....	291,800	293,200
Total Texas	1,479,700	1,500,760§	1,494,600	1,482,600
CALIFORNIA:				
Long Beach	.....	.....	39,100	39,000
Midway-Sunset	.....	.....	50,100	55,000
Kettleman Hills	.....	.....	39,000	38,000
Wilmington	.....	.....	88,700	90,500
Others	.....	.....	422,600	446,500
Total California	635,800	613,200*	639,500	669,000
OKLAHOMA:				
Oklahoma City	.....	.....	80,000	72,150
Seminole Area	.....	.....	108,275	110,750
Others	.....	.....	229,975	233,075
Total Oklahoma	460,000	428,000	418,250	415,975
ILLINOIS:				
Salem	.....	.....	69,000	68,100
Louden	.....	.....	60,000	59,000
Centralia	.....	.....	8,800	8,600
Other New Pools	.....	.....	250,250	237,050
Old Pools	.....	.....	11,950	11,450
Total Illinois	426,500	.....	400,000	384,200

DISTRICT OR STATE	Bureau of Mines Estimate of Daily Demand (Dec.)	State Allowable (Barrels Daily in Dec.)	BARRELS DAILY FOR WEEK ENDED Dec. 6	Dec. 13
LOUISIANA:				
North Louisiana	.....	.....	81,550	81,400
South Louisiana	.....	.....	277,700	276,400
Total Louisiana	340,000	354,705	359,250	357,800
KANSAS	260,700	264,000	240,700	255,950
NEW MEXICO	116,100	117,000	117,600	116,800
EASTERN STATES:				
Pennsylvania Grade	73,900	.....	76,500	74,950
Others, Eastern	23,000	.....	18,500	18,500
Total Eastern States	96,900	.....	95,000	93,450
MOUNTAIN STATES:				
Wyoming	81,900	.....	82,150	85,200
Montana	20,700	.....	21,200	21,300
Colorado	5,800	.....	5,300	5,400
Total Mountain States	108,400	.....	108,650	111,900
MICHIGAN	52,300	59,950†	57,150	53,450
INDIANA	19,700	.....	18,350	19,900
ARKANSAS	76,500	75,297	73,950	73,700
MISSISSIPPI	60,300	.....	74,000	74,700
NEBRASKA	6,100	.....	6,000	5,950
‡**Total 8 Prorated States**	3,421,100	3,412,912	3,401,000	3,425,275
Total United States	4,139,000	.....	4,103,000	4,115,375

* Recommendation of Conservation Committee of California Oil Producers.

† No definite state allowable fixed under prescribed regulations; figure shown here represents daily average production in 4 weeks ended November 22.

‡ Texas, California, Oklahoma, Louisiana, Kansas, New Mexico, Arkansas, Michigan.

§ Calculated daily average of actual production at beginning of month, allowing for under production of 3½ percent below net allowable, which was figured at 1,555,192 barrels daily as of December 1. However, allowable normally increases as new wells are completed, and consequently, actual daily average production for month may be expected to be slightly greater than average as calculated December 1. Under December order, most Texas fields were ordered shut down December 6, 7, 13, 14, 21, 25, 28 and 30.

★ ★ ★

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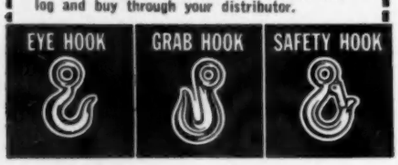

area. California showed a 107,000-barrel increase. The national total of 95,342,000 barrels on December 6 was over 8,000,000 barrels (8 percent) smaller than that held a year previously, but California has had a decrease greater than that amount, and east of California the stocks are larger than a year ago, with the East Coast showing a 268,000-barrel gain and the Indiana-Illinois-Kentucky area an increase of 1,293,000 barrels. Smaller gains are shown for the Appalachian and Coastal Louisiana districts and decreases for Oklahoma-Kansas, Inland Texas, the Texas Gulf Coast (514,000 barrels), North Louisiana-Arkansas, and the Rocky Mountains.

California and Kansas Cause Production Rise

United States crude oil production averaged 4,115,375 barrels daily in the week ended December 13 and exceeded by 12,375 barrels the daily average output in the previous week. However, production fell short of indicated demand for domestic crude by about 25,000 barrels daily, the Bureau of Mines having forecast daily average requirements of 4,139,000 barrels for December.

Importantly responsible for the week's increase was California, which produced 669,000 barrels daily or 30,000 more than in the previous week. Kansas also was up, having averaged 255,950 daily against 240,700 the week before.

On the ohter hand, Texas was down 12,000 barrels to 1,482,600 barrels daily, and Illinois registered a 16,000-barrel decline to 384,200 per day, while Oklahoma and Louisiana were down a few thousands of barrels each to 415,975 and 357,800 barrels, respectively.

Bureau Releases Final Figures on 1940 Production

Final figures on 1940 crude production were released by the Bureau of Mines December 11, placing the year's output at the all-time record of 1,353,214,000 barrels, an increase of 88,252,000 barrels, or 7 percent, over the 1939 output.

The total new supply of all oils in 1940 was placed by the bureau at 1,495,832,000 barrels, including, besides crude, 55,700,000 barrels of natural gasoline and recycle condensate (up 8 percent over 1939); 3,167,000 barrels of benzol (up 27 percent), and 83,751,000 barrels of imported oil (up 42 percent).

Texas, the leading producing state, recorded a gain of about 10,000,000 barrels over 1939, but failed to reach its 1937 record of 510,318.000 barrels, its output being 493,209,000 barrels. Illinois, for the third successive year, lead all the states in total gain over the previous year, but its relative gain was less than that of several of the minor states, like Mississippi and Indiana. Oklahoma City exhibited a surprising revival, but East Texas, and nearby all the large fields outside of Illinois, declined.

"The general boost in crude-oil prices was reserved for the spring of 1941, and in 1940 most of the changes concerned a general downward trend in Pennsylvania-grade postings, small reductions in California, and some increases in the Central States," the bureau commented. "The national average was $1.02 per barrel in 1940, the same as in 1939."

Drilling increased, and 19,125 oil wells were compared, with 17,485 in 1939 and 19,121 in 1938, the report showed. The number of gas wells and dry holes drilled also increased, with the percentage (8.4) of the former to the total being the highest in a number of years. However, the bureau added, "the price declines in the Eastern States were reflected in a greater number of abandonments, so the total number of producing wells did not increase as much in 1940 as in 1939 when fewer wells were drilled." But the total number of producing wells increased by nearly 9000 to reach a total of 389,100 at the close of the year.

The high production in the first half of 1940 was reflected in material gains in crude stocks, compared with a downward trend in 1939, but the upward movement ceased in the fall of 1940, to be followed by material withdrawals beginning in the spring of 1941, it was stated.

Crude runs to stills in 1940 also reached a new peak at 1,294,162,000 barrels, an increase of 5 percent over the preceding year, the bureau disclosed. Of the total, 41,798,000 barrels, or 3.2 percent, was foreign crude.

The principal change in refinery operations noted by the bureau was a decline in the gasoline yield from 45 percent in 1939 to 43.1 percent in 1940, most of the loss being due to increased reforming and other operations to increase the octane number although, it was said, it is probable that there was also considerable diversion of material to the output of heating oils.

The domestic demand for motor fuel reached a new record of 589,490,000 barrels, six percent above 1939. Exports of motor fuel declined steadily as the war spread and totaled only 25,377,000 barrels, against 44,638,000 barrels in 1939. Gasoline stocks registered a small net gain for the year in contrast with a large increase in 1939.

The domestic demand for kerosene, distillate fuel oil, and residual fuel oil in 1940 were 14, 19, and 5 percent higher, respectively, than in the previous year. Total exports of all oils were 31 percent below 1939, but exports of asphalt increased several fold in contrast with the trend in other products.

Gasoline Line Across Georgia Near Completion

Opening of the 456-mile gasoline pipe line of Southeastern Pipe Line Company, owned by Gulf Oil Corporation and The Pure Oil Company, is scheduled for December 19 with ceremonies at Atlanta, Georgia. The line is designed to carry 30,000 barrels of gasoline daily from Port St. Joe, Florida, to Chattanooga, Tennessee.

Among speakers scheduled for the ceremonies at Atlanta, through which the line passes, are Senator George of Georgia and Representative Cole of Maryland. Invitations were sent to officials of Georgia, Florida and Tennessee.

Plan Pipe Line from Tinsley to Baton Rouge

Oklahoma Pipe Line Company or some other affiliate of Standard Oil Company of New Jersey will construct a 10-inch pipe line from the Tinsley field in Mississippi to Baton Rouge, Louisiana, it has been officially announced. Construction is to begin within the next 60 to 90 days, it was said.

U. S. FIELD OPERATIONS

Illinois Basin

Clay County Pool Opened With 3710-Barrel Well

Clay County wildcat flows 3710 natural in 24 hours; White County wildcat flows 60 bbls an hour natural; White County wildcat testing sand horizon; outposts to Rural Hill field, Hamilton County, testing; outpost to White County's Roland field completed as producer.

Clay County: Williams' Nolan 1, C S½ SE NW 10-2n-7e, a mile and a half west of the Clay City field, flowed 3710 bbls initially in 24 hours from McClosky at 3062-83 ft, natural, largest pool opener completed in the state since the Johnsonville discovery. Pure Oil Co. was building line to site and drilling two offsets.

White County: Joe Dawson's H. L. Clark Estate 1, NW SW SE 36-1s-10e, north of Maunie, testing Aux Vases at 2938-79 ft after shot. In addition to Aux Vases saturation the test found light Benoist show at 2840-33 ft. It is 1¼ miles from other production.

N. V. Duncan's M. Powell 1, N NW SE 1-7s-8e, ¾ mile north of Roland field, pumped 90 bbls in 24 hours initially from Aux Vases and Lower O'Hara.

W. C. McBride's Daly 1, C N½ SW SW 7-4s-10e, ¾ mile southwest of Tar Springs production in new East Centerville pool, flowed 60 bbls an hour with tools in hole from McClosky lime at 3265-76 ft natural.

Hamilton County: Dave Ring et al Craddock 1, NE SE NE 22-6s-5e, ¾ mile southwest of production in Rural Hill field, cleaning and swabbing Aux Vases at 3188-3210 and 3211-25 ft, showing for producer. North of Cradodck 1, Curtis & Heath's Foster 1, SE SE SW 15-6s-5e, set casing through sand at total depth 3393 ft to test streaked saturation.

Marion County: Deaton-Bears Iuka State Bank 1, E½ NW SW 33-1n-4w, closely watched Marion County wildcat, drilling 1910 ft.

Wayne County: An important Wayne County wildcat, on a seismographic high, N. V. Duncan's Guthrie 1, C N½ NW SW 35-1n-5e, 5 miles west of the Johnsonville field, shut down to check titles and repair rig at 2022 ft.

Jefferson County: Mid-Sun Oil Co.'s Thomas Adams 1, N½ NE NW 14-2s-3e, abnd in McClosky 2950 ft, top Glen Dean 2250 ft. Location has been staked for another wildcat, Southwestern N. Fitzgerald 1, SE NE SE 32-4s-3e.

Saline County: Kingwood Oil Co.'s G. A. Gullett 1, NE NE SW 31-8s-5e, west of Harrisburg in wildcat territory, drilling 2270 ft; R. Hal Compton's Ray Durham 1, SE SE SE 30-7s-6e, also in wildcat territory, drilling 3220 ft with no shows reported.

Indiana

Vanderburgh County: Being put on pump was a prospective new pool-opener 5 miles southwest of Evansville, A. B. Settle's Bert Edmonds 1, SE SW NW 16-7s-11w, which on swab showed for 40 to 50 barrels a day, natural, from Waltersburg sand at 1645-57 ft. When plug originally was drilled hole filled with water necessitating cement squeeze job.

Posey County: Sells Petroleum's Elliott-Hickman 1, SW SE SE 14-5s-14w, southwest of New Harmony, was drilling below 2950 ft, apparently dry through McClosky. Starting at surface elevation of 466 ft, light shows were reported in Mansfield, Palestine and Waltersburg sands. Dry were Cypress, topped at 2652; Benoist, topped at 2810; Renault, topped at 2843; Aux Vases, at 2907. In the new Mt. Vernon field, Carter Oil Co.'s Erwin 2, SE SE NW 1-7s-14w, was setting casing at 2470 ft to test Cypress topped at 2413 ft.

Pike County: Two and one half miles southeast of Stendal, Joe Dawson's John Patberg 1, SW NW NE 16-3s-7w, was showing for a pool-opener after fluid rose 700 feet in the hole from a saturated sand break at 1130-38 ft, tentatively identified as the Oakland City sand.

Sullivan County: Showing some water with oil was a prospective pool-opener 10 miles south and 4 miles west of the town of Sullivan, Sun Oil Co.'s Queen 1, C NE SE 17-6n-9w, which was being put on production test with 1000 ft of fluid in hole from McClosky at 1325-29 ft. Ste. Genevieve series was topped at 1287, from surface elevation of 433 ft. Nearest production is the old Sullivan field, 10 miles north.

Spencer County: Expected to be abandoned after testing a slight show of oil in the McClosky at 1160-63 ft was a wildcat of A. W. Cherry-Barron Kid et al, Charles Lake 1, SE SW NE 33-5s-5w.

Kentucky

Henderson County: Coring shallow sand formation at 400 ft was Sam Jarvis and Ike Taylor's Otto Breitschu 1, (3-P-26) wildcat 1½ miles southeast of Reed.

Drilling at 2175 ft, was Sinclair-Wyoming Oil Co.'s Vittitow 1, C N½ NW NE 2-O-18, wildcat between Shawneetown, Ill., and Uniontown, Ky.

Oklahoma

West Hotulke Extended Quarter Mile Northeast

West Hotulke pool extended ¼ mile; Noble County wildcat encounters oil Strain in Wilcox sand; major extension of north St. Louis pool looming; pair of oil wells added on west side of Guthrie pool.

West Hotulke: Atlantic Refining Co.'s Rowlett 1, SW NE SW 23-9n-4e, extends production in major Pottawatomie County pool, ¼ mile northeast; drilled to 4570 ft in dry Wilcox sand, plugged back and perforated 4360-80 ft with 40 shots in Viola lime, flowed 30 bbls hour through casing while cleaning out, now pinched to 8 bbls hourly on ¼-in choke.

Noble County: Carter Oil Co.'s School Land 1, C NE SW 13-21n-2e, wildcat east of Sumner and miles from production, gives promise of opening a new area, well was below 4411 ft in upper Wilcox zone and reported some oil stains in the sand. Second Wilcox is the ultimate goal.

North St. Louis: Mid-Continent Petroleum Corp.'s Weld 1, SW SE SW 22-8n-4e, promises a major northwestern extension for Pottawatomie County Hunton lime area, test cored good saturation in lime zone to 3945 ft, set 7-in 3934 ft, waiting on cement.

Logan County: Sunray Oil Co. et al's McLeod 2, SE NE SE 12-17n-2w, on west flank of Guthrie pool and in the Bartlesville sand area of the pool, drilled to 5120 ft in Bartlesville, shot 50 qts, flowing 20 bbls oil hourly while cleaning out. W. C. McBride's Eastwood 6, NW NW SW 7-17n-1w, drilled to 5102 ft in Bartlesville, now swabbing 17 bbls oil per hour, to shoot. New sand zone of Guthrie pool discovered by Sunray after defining western Wilcox sand limits of the 1941 discovery.

Creek County: D. B. Malernee's Rowntree 1, SW NW SW 2-14n-7e, wildcat south of Big Pond area, set 7-in 2607 ft, drilled out plug to 2642 ft in Prue sand for rainbow show of oil, preparing to shoot ¼ mile 1 23-9n-4e, 14 mile 4570, 4360-8040, 30 8 ¾-in 1 C NE SW 13-21n-2e, 4411 1 SW SE SW 22-8n-14e, 3945 7-in 3934, 2 12-17n-2w, 5120, 50, 20 6 7-17n-1w, 5102, 1941, 1 SW NW SW 2-14n-7e, 7-in 2607, 2642.

Kansas

New Reno County Field Near Peace Creek

A new producing area for Reno County; Lindsborg field extended; new zone discovered in Gustafson pool; Kraft-Prusa pool extended 1¼ miles eastward; Zenith pool defined; Pratt County wildcat logs good show.

Reno County: Iron Drilling Co. et al's Graber 1, C W½ NW NE 2-23s-10w, has opened new producing area 5 mi northwest of Peace Creek pool, drilled to 3744 ft in Viola lime topped at 3685 ft, acidized 5000 gals, well flowed 15 bbls oil per hour by heads on 15-hr test, to take potential.

McPherson County: M. & L. Oil Co. et al's Johnson 1, C W½ SW SE 7-17s-3w, has extended Lindsborg pool ½-mi southwest. Well received state potential of 759 bbls daily after jetting with 3000 gals acid at 3354 ft in Viola lime topped at 3347 ft.

Russell County: Stanolind Oil and Gas Co.'s Kastrup 1, C S½ SW NW 14-15s-12w, west of Gustafson pool discovery well, has opened new producing zone for comparatively new area, test topped Lansing-Kansas City lime 2881 ft, picked up new pay 2962-65 ft, oil rose 450 ft in hole in 1½ hrs, then swabbed 3 bbls per hr on 4-hr test, now deepening below 3025 ft in same zone.

Barton County: J. J. Lynns Kraft 1, CSL SE NW 36-16s-11w, extends Kraft-Prusa area 1½ mi to east. Well received official state potential of 56 bbls oil

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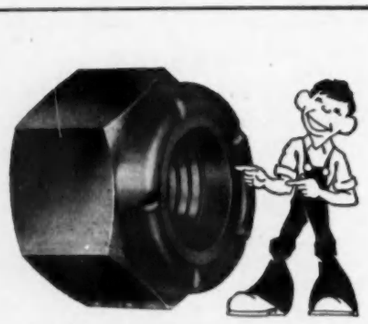

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Zenith Pool: F. C. Hall's Anderson 1, NWC SW 8-24s-10w, although in Reno County, defines eastern limits of Zenith pool of Stafford County. Test drilled to 3910 ft in Viola lime topped at 3888 ft, was abandoned.

Pratt County: Falcon-Seaboard Drilling Co.'s Randle 1, C E½ SE NE 28-28s-13w, 10 mi southwest of Iuka pool, topped Arbuckle lime 4512 ft, cored 4517-24 ft, recovered oil saturation and fair porosity, now drilling ahead 4555 ft.

Nebraska

New Barada Field Extended to West

Mistake proves rich extension of new Barada pool; outpost to area starting; Salem wildcat is failure.

Barada Pool: Skelly Oil Co.'s Merz 1, C E½ NE NE 35-3n-16e, set 7-in 2505 ft in Hunton lime topped at 2438 ft. Pipe evidently set too high with open pay below as well filled with 2275 ft of rich oil around casing shoe, now bailing. Well possibly best of the now five producing, extends Richardson County pool location west; operators Roesch 4, C W½ NE SW 36-3n-16e, drilling 1942 ft. Roesch 5, C W½ NW NW 36-3n-16e, waiting on cement, 10-in 161 ft. O. C. Johnson and Dan Short's Horn 1 C E½ NE SW 26-3n-16e, location ¾-mi northwest of Skelly's new producer.

Richardson County:. Johnson and Short's Dowell 1, NWC NE 31-3n-15e, wildcat northwest of Salem, drilled to 2800 ft in Hunton lime topped at 2684 ft, temporarily abandoned, will test Viola lime later. A. D. Kruger et al's Ogle 1, SEC 9-1n-14e, new wildcat start 5 mi south of Dawson. Edwin Towle et al's Towle Realty Co., SWC 19-1n-16e, 1½-mi west of Falls City pool, abandoned at 2642 ft in Hunton lime topped at 2542 ft. Ohio Oil Co.'s Bucholz 1, NWC SW 17-1n-16e, Falls City pool, cored to 2360 ft in Hunton lime with heavy water content showing, set pipe, however, for test; operators Bucholz 9, NW SE SW Sec 17, recementing at 2228 ft in Hunton; operator's Bucholz 11, C E½ NW SW Sec. 26, new start.

West Texas

Pecos Wildcat Logs More Saturation in Ellenberger

Pecos County wildcat logs additional oil pay in deepening, and two shallow zones uncovered in Conry-Davis pool. Big producers recorded by edge wells in Foster and Sand Hills fields. Crockett County semi-wildcat on pump.

Ellenberger Strike: Gulf and L. H Wentz's Millar 2, northeastern Pecos County wildcat that recently showed for small flow of 36-gravity oil and gas in Ellenberger 4363 ft, 7-in 4282 ft, encountered additional saturation in deepening to 4383 ft, elevation 2534 ft. Drill-stem 4365-83 ft yielded 3513 ft oil and 60 ft rotary mud in 1¾ hours with 35,000 ft gas daily. Hole will be washed with oil then acidized. This discovery entered Ellenberger near 4157-ft and pipe was landed 40 feet below prolific gas zone as revealed by original drill stem test. Area has been designated as Wentz pool, and additional development will follow this completion.

Delaware Wildcat: Pure Oil Co.'s T. P. Land Trust 1-A, extreme western Pecos County, fishing tools at 5362 ft, swabbed 17 bbls oil, including 1½ to 3 percent bs&w, last 24 hours. Oil production from upper portion of Delaware sand, topped 5082 ft, elevation 3311 ft. Operator plans to establish water table before plugging back for nitro shot.

Big Wells: C. O. Davis et al's Judkins-Atlantic 3, NW SW NW T&P Sec 16, Blk 42, T-2-S, east offset to recent prolific completion by Broderick & Calvert on east edge Foster field, Ector County, flowed 1122 bbls oil natural in 2 hours, lime 4350-85 ft. In northeast extension sector Sand Hills field, Gulf's Waddell et al 33, C NW PSL Sec 20, Blk B-26, earned potential rating 6044 bbls 35.7-gravity oil, used 5000 gallons acid at 4631 ft, gas-oil ratio 437/1. Latter is ½-mile north of production.

Shallow Pay: Magnolia and George Abell's Myrick-State 1-B, south offset to 3800-ft discovery for Conry-Davis pool, opened new shallow oil zone in flowing 194 bbls 36.6-gravity oil 1-in choke, and later gauged 66 bbls 24 hours same choke, gas-oil ratio 273/1. Production from perforations 2250-2300 ft, plugged back to 2440 ft after proving dry in regular pay. Texas Co.'s Williams 1, west offset to the pool's original producer, failed to yield oil from series of perforations and acid treatments between 3830-3970 ft, total depth 4090 ft, but tested 6,400,000 ft gas, 1500 pounds closed in pressure, after using 2000 gallons acid through perforations 3729-50 ft and 3760-90 ft, elevation 2375 ft.

Deep Prospects: Magnolia's Walton-State 20, Winkler County's first deep test, abandoned in Silurian 8445 ft, having failed to make producer from perforations Middle and Lower Permian. Shell's Sealy-Smith 1, northeastern Ward County, drilling 7860 ft without shows. In Bailey County, Broderick & Calvert and Amon Carter's Hayward 1, projected Clear Fork test, abandoned 5601 ft. Phillips Petroleum Co.'s Montague 1, Ordovician test for Briscoe County, yielded 1260 ft sulphur water and 2000 ft rotary mud when tester used 5502-5727 ft, bottomed in cherty-shale 6052 ft.

Gaines Deep: Amerada's Hudson 1, 3 miles west of production in Wasson field, failed to qualify as commercial pumper after nitro shot and acid 4952-5000 ft, 5½-in 4900 ft, and deepening. Originally scheduled to drill to 7000-ft, but small pipe may prevent fulfillment. Likins & Hall's Jones 1, northwestern Gaines County wildcat, drilling dry lime 6190 ft.

Crockett County: Humble's Owens 1, 1½ miles northwest of Couch pool's 2186-foot flowing well, swabbed 64 bbls oil, 2 percent bs&w, in 8 hours while lowering fluid level to try and free stuck swab. Production from broken pay 1905-2003 ft, elevation 2501 ft.

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Barnsley 1, west offset to Ellenberger production in south extension area, yielded 4120 ft sulphur water when tester used 5797-5845 ft in Ellenberger, topped 5701 ft, elevation 2459 ft. Dip of 100 ft recorded on Ellenberger marker as compared to offset. May set pipe to test nominal saturation logged in upper dolomite.

Barnhart Deep: Amerada's University 1-R-B, C NW NE Sec 8, Blk 48, 4000 ft south by west of company's 9066-ft Ellenberger discovery in southeastern Reagan County, halted at 9238 ft to run pipe, having logged ample saturation in dolomite to justify running pipe without drill stem test, although lower on structure. Company's University 1-R-D, 1½ miles east of producer, drilling 3070 ft.

West Texas

Eastern Clay County Test Showing From Bend

Eastern Clay County wildcat showing for oil producer; deep prospecting in Antelope and Burns-Browning pools disappointing. Confirmation test in Archer County deep pool making small well. Approval of 3-cent upward revision of crude prices in North and West Central Texas by price administrator leaves district 4 cents short of equalization with competing crudes in Mid-Continent and East Texas field. Raise deemed insufficient by operators.

Clay County: Continental Oil Co.'s Spring 1, NE NW NW H&TC Sec 24, Blk 4, 3 miles northwest of Ringgold production, preparing test at 5626 with 7-in 5584 ft. Drill-stem test 5588-5626 ft yielded 1950 ft 44-gravity oil and 200-ft oil-cut mud from Bend conglomerate, topped 5576 ft, being 82 ft high to Gant's Stine 1, an intermediate failure. Shell's Williams 1, east offset to 3800-ft producer in north end Burns-Browning pool, swabbed 2 bbls oil hourly on initial test after acidizing through perforations 5668-90 ft, opposite Mississippian, topped 5672 ft. Previous deep test on south end production proved dry in Mississippian. Shell's Mullens 7-C, third try for Mississippian production in Antelope pool, yielded water on swabbing test from perforations 5955-85 ft in Mississippian, topped 5956 ft.

Montague County: Continental's Winder 1, initial test on geophysical prospect and 2 miles east of Stoneburg, flowed 150 bbls oil 4 hours from perforations 6233-41 ft in Bend, topped at 6039 ft, hole plugged back from 6610 ft. Company's Yowell 1, mile northwest of above discovery, has spudded, and authorization made for Penn 1, east offset to small Bend discovery completed by Walter Gant on Turner tract, 5½ miles northeast of Bowie.

Archer County: Sunray Oil Co.'s Seibold 1, southeast corner L. P. Jones Survey and ½ mile southwest of King Oil Co.'s Taylor 1, first Mississippian producer in county, averaged 2 bbls oil hourly on swabbing test, used 7000 gallons acid through perforations 5002-12 ft, plugged back from Ellenberger 5030-49 ft. Seibold 1 entered Mississippian 4985 ft, being 36 ft low to discovery on this marker and 47 ft low on Ellenberger. Golding & Cochran's Kunkel-Sun 1, 3 miles northeast of Olney, awaiting orders at 5303 ft, having proved dry in Bend, topped 4689 ft. Dr. Kenneth Van Allen et al's Kelly 1, 5½ miles west by north of Archer City, abandoned in Ellenberger 5510-5637 ft after acidizing Bend saturation 4933-55 ft with negative results. R. H. Hawn et al's Edwards-Texaco 2, northeast edge Scotland multiple-pay pool, set pipe to test promising saturation in Mississippian 5702-48 ft, total depth 5756 ft, although exceptionally low on structure.

Denton County: Hunt Oil Co.'s Jones 1, southwest part John Thomas Survey A-1239 and on 3169-acre lease, passed up promising oil stain and odor in broken conglomerate 5322-84 ft, and was drilling 5550 ft. Plans are to run pipe upon completion of depth contract. Company's Jones 2, projected 3300-ft test for same geophysical prospect, drilling 1300 ft, and rig on ground for Forrester 1, scheduled 5500-ft test in southwest corner of 759-acre tract, J. W. Chandler Survey A-303, being 3 miles southeast of above wildcats.

Haskell Discovery Swabs Oil From Canyon Lime

Haskell County has oil discovery in Canyon lime. Outpost in two Stonewall County pools missed regular pay.

Haskell County: Edward Lawson et al's Rose-Amerada 1, J. M. Case Survey, averaged 3 bbls fluid hourly, including ½-bbl drilling fluid per hour, on swabbing test, perforations 2663-85 ft. Hole drilled to 3002 ft, with 5½-in 2873 ft, and perforations at 2828-35 ft also showed production possibilities. Discovery is southwest offset to 2933-ft core test drilled by Amerada last December.

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East Texas

Houston County Wildcat Testing Promising Wilcox

Wilcox prospect in southern Houston County awaiting production test. Woodbine failures listed for Navarro and Van Zandt counties. Chapel Hill has six operations.

Houston County: C. P. Culmore and Gillespie's Lundy 1, 1½ miles southeast of Lovelady, preparing to perforate casing opposite promising saturation at 3214-20 ft in Wilcox, topped at 2084 ft hole drilled to 5016 ft, then plugged back with 5½-in at 3295 ft.

Wildcat Failures: Lyman Davis et al's Stevenson 1, Bazette area, Navarro County, entered Woodbine 3037 ft, elevation 409 ft, and halted in shale 3043 ft. In Van Zandt County, Robert Lake et al's Allred 1, 4½ miles north of Wills Point, tested water in Woodbine sand 3608-4104 ft, elevation 455 ft.

Hunt County: Parsons et al's Marshall 1, northeast edge of Commerce, drilling broken lime 4860 ft, having topped Georgetown 4623 ft, elevation 534 ft.

Henderson County: Stanolind has authorized a west offset to British-American Oil Producing Co.'s Young 1, recent Rodessa discovery at 7608-41 ft, 7½ miles southwest off Athens. Base allowable of 125 bbls daily assigned for this 61-gravity distillate producer. Stanolind to purchase the allowable, paying $1.23 per barrel at well, and 12 cents per barrel to trucking contractor for deliveries made to Stanolind Pipe Line Co. at Cayuga field receiving tanks. Commission redesignated area as Tri-Cities pool.

Hopkins County: W. B. Hinton and Talco Asphalt & Refining Co.'s Long-Sun 1, prospective Paluxy strike, resumed pumping test from casing perforations 4740-48 ft after cementing off perforations 4748-55 ft. Well showed small volume low-gravity oil when first put on pump, then produced all water for period.

Chapel Hill: Six active tests in this oil and gas-distillate field is the greatest volume of activity launched to date. Sun is operating two rigs, and one test each for C. R. Starnes et al, Chapel Hill Gas System, Shell and Sinclair Prairie.

Southwest Texas

Jim Wells Field Opened; Drilling Activity Gains

Further boost in activity is indicated as the past week's drilling report gained 80 operations. Several field discoveries, new sands and extensions were recorded.

Lower Gulf Coast: Rand Morgan's Fee 1-H, mi south of Henshaw, Jim Wells County, dr to 5800 ft, set 5½, 5206 ft, perf 3780-92 ft in Frio, to flow 100 bbls 53-gr oil through ¼-in. This is a new field or extension and new sand.

Magnolia's Gordin 3, northwest outpost at North LaWard, Jackson County, perf 5213-22 ft, fw 95.36 bbls of 25.72-gr oil, 4% sw, 9/64-in choke, 300 lbs on tubing with casing sealed; extension.

Laredo District: Sun Oil Co.'s Weiderkehr 75-A, opened new Yeagua pay mile southwest of northwest part Government Wells field with flow 86.25 barrels clean oil, 3/16 choke, 2936-40 ft. Sun's Jones 1, Abajo grant, southern Jim Wells County, opens gas field with 12 million flow open; perforated 4230-35 ft. Pressures equalized 1500 lbs when cut to 5.32 choke.

Pettus Area: Brown & Wheeler's Kauffman 3-C, Hords Creek, Goliad County, new sand in Frio zone, 2.5 million gas, perforated 1995-2005 ft (bottom 5010 ft); shut in 1400 pounds.

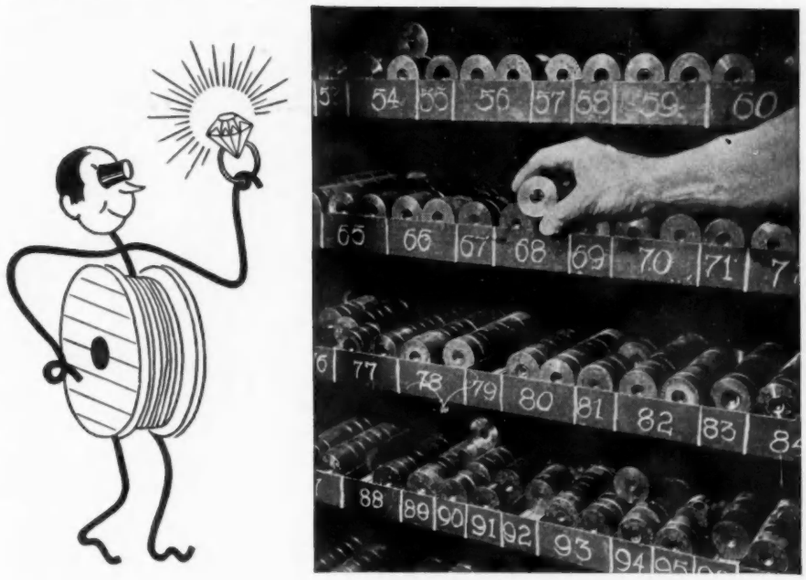
Lower Valley: Continental's Slick 1-D, apparently extending Rincon, Starr County, mile southwest, in regular sand 4074-83 ft.

Texas Gulf Coast

Wildcat Opens New Field In Frio in Jefferson County

Frio sand field opened in Stowell area, Jefferson County; Wilcox wildcat staked in Lake Creek area, Montgomery County; swabbing continues in shallow discovery, Fostoria area, Montgomery County.

Discovery: Glenn H. McCarthy continues to test Crawford 1, western Jefferson County, Stowell area. Well opened production in Frio with Marginulina showing possibilities. An old prospect with two dry holes drilled in area, Crawford 1 was perforated 8858-



YES, a "JEWELRY SHOP" in a WIRE ROPE Plant!

The die-racks are the "jewelry counters" in the Union Wire Rope plant — and as much care is given these dies as a jeweler devotes to fine diamonds. For these dies insure rigid uniformity — one of the characteristics that have made Union Wire Ropes the standard of quality!

8

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UNION Wire Ropes

The "ULTIMATE LOW COST WIRE ROPE"

8977 ft, the 119-ft section having 60 ft net oil sand. Flowed rate 780 bbls oil daily through ¼-in on initial test, low gas-oil ratio, with 1200 pounds flowing pressure. Drill-stem test recovered 5 stands oil, 3750 pounds bottom-hole pressure, 3250 pounds flowing pressure. Total depth is 9307 ft. Marginulina showed for production at 8575-8615 ft; two drill-stem tests in section failed when tool slipped; sand carried water in bottom part.

Navarro Oil Co. and Earl C. Hankamer drilled Welsh 1 to 8880 ft, 2 miles north of discovery in 1939. Hankamer et al drilled Powell 1, 3 miles northeast of discovery, in 1940. Latter well was 450 ft low structurally to first test.

Prospect has been under lease several times after extensive geophysical work. As result of recent gravitymeter survey of area by Robert H. Ray, second block was assembled 3½ miles north of discovery. Brown & Wheeler assembled acreage for discovery well. Large leaseholders are McCarthy, Hankamer, A. C. SoRelle, and Sinclair Prairie Oil Co. Discovery thought to be largest of year on Coast, resulting in a flurry of lease and royalty trading and consequent boom in prices.

Wilcox Trend: McKay Donkin et al, Houston, have staked J. L. Winslow 1, southwest Lake Creek field, Montgomery County, on 400-acre tract in John P. Morris survey, 466 ft from north and east lines. Test projected to 10,000 feet.

Cockburn Oil Corp. and H. L. Hunt drilling 8489 ft in Texas A. & M. Forest Reserve 1, Wilcox test Bleakwood area, Newton County. Cockfield topped 5862 ft, no shows encountered. Believed well running slightly high, although structural control is difficult since no tests have been drilled in immediate vicinity. Contract depth is 8800 ft.

Brazoria County: Sterling Oil & Refining Co. is resuming drilling in Shanks 1, wildcat at Stratton Ridge. Operators have cleaned up long fishing job, total depth being around 8633 ft; report gas shows.

Montgomery County: Atlantic Refining Co. is swabbing Foster 1, Fostoria area discovery. Perforations were made at 5790-94 ft in Cockfield, flowing 10 to 12 bbls oil hourly on drill-stem test, water breaking in later.

Polk County: Pan American Production Co. has staked Broman 1 in recently discovered East Goodrich field, Cockfield sand area. Well is on 320-acre lease A. Viesca 7 league grant, spotted 467 ft from southwest and southeast lines of lease, making it east-northeast offset to Texas Long Leaf 1-B discovery.

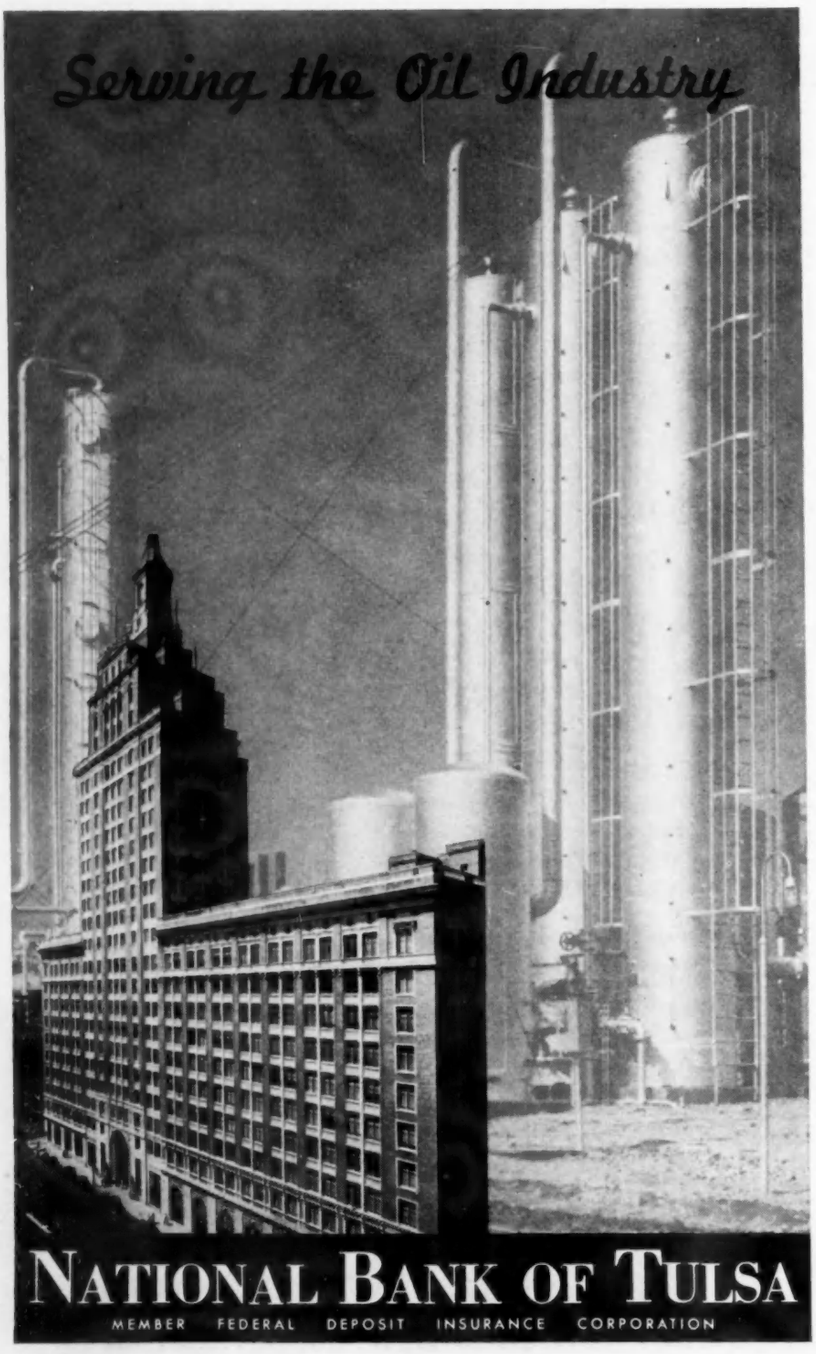
Harris County: Atlantic Refining Co. spotted Cohn 1, wildcat on west flank Esperson Dome, Liberty County, location being just across Cedar Bayou in Harris County. Projected to 9000 ft, location is on 248-acre tract in Meredith Duncan survey. Production already has been developed on other flanks. General Crude owns big Moore's Bluff lease across the bayou east of new location.

Chambers County: Major extension is indicated at Fig Ridge. Sun Oil Co. has set 5½-in casing to 8584 ft, total depth, to test Janet McCarthy 1, mile southwest of production.

Wildcats: The Texas Co. has staked Harris County Land & Implement Co. 1, 3½ miles off southeast flank Humble field, Harris County. Located on 500-acre tract, Victor Blanco survey, projected to 5500 ft.

Stanolind Oil & Gas Co. is testing Anderson 1, wildcat on northeast flank Big Dome, Jefferson County. Perforations made at 8705-20 ft and 2-inch tubing run for test. Several gas sands were encountered from 7000 ft to plugged back depth 8722 ft. Total depth is 9500 feet.

Liberty County: The Texas Co. has opened deep sand on north flank Hull field, Armelein-Fee 3 flowing 620 bbls oil daily through ¼-in choke from perforations 5815-75 ft.



Louisiana Gulf Coast

Open Distillate Field In Acadia Parish

New distillate field opened in Acadia Parish; production casing set in second well at Bastian Bay.

Acadia Parish: Stanolind Oil & Gas Co. has opened distillate field in Acadia Parish with Tweedel 1, Lewisburg prospect (Church Point). The wildcat flowed 8 bbls of distillate in four hours through ⅛-in choke from perforations at 10,140-150 ft. Tubing pressure was 3700 pounds, casing 3800 pounds. Production is from basal Frio sand.

St. Charles Parish: Phillips Petroleum is setting production casing in State 2-396, semi-wildcat southwest of discovery at Bastian Bay. Drilled to 9900 ft, operators ran electrical log and set casing.

North Louisiana

Third Deep Test Planned For North Lisbon Area

First Lower Marine test in Shreveport field failure; third 10,000-ft Smackover lime test planned in North Lisbon; shallow Cartersville field to get Smackover test; DeSoto wildcat shows improvement in work-over.

Shreveport: R. E. Allison's Ellerbe 11, SW SW SE 27-18n-14w, first Lower Marine test in Shreveport field, that normally produces from Basal Glen Rose lime, ran electrical log to 8690 ft preparatory to abandonment or plugging back to Glen Rose. Aside from slight show upper part Lower Marine (top 8065 ft) rest of horizon showed salt water.

North Lisbon: Union Producing Co. unitizing for third 10,000-ft Smackover lime test, SEc 13-21n-5w, location between Meadows A-1, C NE 18-21n-4w, that is producing distillate at 10,395 ft, and McDonald 1, C SW 13-21n-5w, coring betlow 11,095 ft after logging slight show gas 10,895-10,907 ft but checked over 600 ft low with Meadows A-1.

De Soto Parish: J. E. Stack's Cook 1, SW SW 32-13n-14w, completed small oil well several months ago, later choked off by salt water, reworked, packer run and water in Austin chalk cased off, casing perforated 2765 ft, 5000 gallons acid used, well swabbed 100 bbls oil in 3 hours, still swabbing.

Rocky Mountain Area

Two Wyoming Fields Have Production Extensions

Tops were released on two important eastern Colorado willcats while two Wyoming fields had slight extensions.

South Tower: Stanolind Oil & Gas Co.'s Snell 1, C SE SW 7-20s-41w, drilling at 4250 ft, Kiowa County, Colorado, topped Cimarron anhydrite 2212 ft, giving elevation on Cimarron 1641 ft compared with 1195 ft for discovery well of Patterson field, 30 miles west in Kearny County, Kansas.

Kit Carson: O. E. Torrey's Whitson 1, NW NW SE 12-13s-49w, Cheyenne County, Colorado, drilling Red Beds 3565 ft, topped Fort Hays 1570 ft, Dakota 2025 ft, running 47 ft lower on Fort Hays, 32 ft lower on Dakota, than Gulf's failure half mile south.

Cole Creek: General Petroleum Corp.'s 53-16-S (State), NW SW NW 16-36n-77w, extended Cole Creek, Natrona County, Wyoming, half mile east on north flank structure, pumping 75 bbls initial hole bottomed Shannon sand 4661 ft, topped 4621 ft casing point 5½-in.

Mahoney Dome: Quarter-mile north nearest production Mahoney Dome, Carbon County, Wyoming, Sinclair-Wyoming Oil Co.'s Govt. 5-F, C NE NW 34-26n-88w, completed for 25 bbls pumping, Tensleep topped 4346 ft, td 4521 ft.

South Lance Creek: Cow Gulch Oil Co.'s Nelson 1, C SE SW 19-35n-65w, 2 miles nearest Lance Creek well, Niobrara County, Wyoming, disappointment in Basal Sundance, swabbing 12 bbls water hourly after acidizing 500 gals, 30 perforations in 7-in opposite 5090-5110 ft, td 5600 ft, 7-in 5205, may deepen for Leo series test.

Mississippi

Madison Discovery Well Flows 28 Barrels Hour

New field opened in Madison County; Hunt seeks option on southwest Mississippi block for five wildcat tests; Ohio plans delta wildcat.

Madison County: C. L. Morgan's Whitworth 1, NW SW 4-11n-3e, wildcat two miles southeast Pickens field, completed in Eutaw (Blossom) after perf 4824-33 ft, flowing 28 bbls hourly, ¼-in choke; tubing pressure 140 pounds, casing 160 pounds. All of block but 80 acres around well owned by Phillips Petroleum Co. and edge leases held by Carter Oil Co. Tops: Wilcox 1206, Midway 3056, Clayton 3810, Selma chalk 3840, Eutaw 4778 ft.

Southwest Mississippi: H. L. Hunt negotiating with Southern Minerals Corp. for 250,000 acres in Pearl River County and Washington Parish, Louisiana, for drilling five tests, six months exploratory campaign before tests drilled.

Alabama, Florida and Georgia: Stanolind Oil & Gas Co. bought interest in G. L. Reasor's 20,000-acre block township 9 and 10 south, ranges 9 and 10 west, Winston County, Alabama. Reasor obtained postponement starting test until January 1 and will drill in Section 19-9s-10w.

In Leon County, Florida, State Geological Department recently completed first of series core holes, in 20-1n-1w. Clem S. Clark seeks geophysical option 20,000 acres townships 44 and 45, range 29 east, Hendry County, Florida; Humble seeking to lease 25,000 acres in Manatee County, Florida, and has leased 13,900 acres in township 3 south, range 2 east Waukulla County, Florida.

J. W. Shone plans early test on 40,000-acre block Laurens County, Georgia. In same state J. R. Sealy made location for Fee 1, SEc Lot 116, Second Land District.

Michigan

Two Dry Holes Define Reed City Limits

Two dry holes, fourth and fifth out of 101 wells drilled since May 29, appeared to definitely define the Reed City field on all but southeast where untested area of 300 to 600 acres may produce. Gordon & Bolger's Sweet I, C S½ NE NE 20-18n-10w, half mile north production, drilled Monroe horizon dry and mile farther north Cook & Voorhees' Kremmin 1, C S½ SE SE 8-18n-10w, drilled same horizon dry.

Roscommon: Sun Oil Co.'s Bauman 1, 29-24n-1w, wildcat, bottomed 4209 ft and plugged back to 4205 to produce 35 bbls day natural Monroe lime at 4188-4200 ft. It will be acidized before final completion.

Kawkawlin: C. W. Jones' Laracey 1, NE SE SE 27-15n-4e, Bay County, estimated 100 to 160 bbls day from Dundee lime on basis after-acid production tests, to extend field half mile north.

Bellyache Much Improved!

We have done our share of griping, convinced that the government was hoarding too much and telling too little. Be that as it may, we have now been slapped in the face. Our sleeves were rolled to the elbow in spite of our beefing. They are now torn off at the shoulder and to hell with any one who gets in our way while serving customers who produce oil for machines used to exterminate rats.

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UNITED STATES WELL COMPLETIONS

Arkansas

Union County (East Schuler)—
Atlantic, Bishop 1, 13-18-17 ..... 155 5666
Union County (Urbana)—
Marine Oil Co., A. C. Newsom A-1, 19-17-13 ..... • 3110

California

Alameda County (Altamont Area)—
Shell, Nissen 1 ..... • 6563
Fresno County (East Coalinga Eocene)—
Standard, No. 46-31B 2602 8177
Kern County (Coles Levee)—
Ohio, KCL F-19, 87-10.....1099 9800
Kern County (Kern Front)—
General, Young 12..... 8 2022
Kern County (Midway-Sunset)—
Marvic Associates, Ltd., No. 1..... 30 1172
Kern County (Mount Poso)—
Bradford Bishop, No. 1..... 125 1433
Shell, Vedder-Rall 24..... 136 2030
Vedder 37 ..... 406 1845
Kern County (Rio Bravo)—
Union, Kernco 27-34 ..... 704 11488
Kern County (Ten Sections)—
Shell, KCL A-57-29 ..... 403 8235
Kings County (Kettleman Hills North Dome)—
Standard, No. 1-1U ..... • 12884
Los Angeles County (Oak Canyon)—
Western Gulf Oil Co., G. R. Wickham 1 ..... 30 7437
Los Angeles County (Palos Verdes Area)—
Newton Dev. Co., Palos Verdes 1.. • 4500
Los Angeles County (Seal Beach)—
Tide Water, Bryant 21..... 155 5687
Los Angeles County (Wilmington)—
Briston Oil Corp., Spring 1..... 140 3732
George F. Getty, W-9..... 69 3352
Los Feliz Oil Co., Capital 1..... 95 3690
Ring Oil Co., W-7.....No. Est. 3100
Rush, Nelson & Graham, Webb Comm. 1 ..... 50 3690
Union Pacific, UP 211..... 517 3465
UP 213 .....No. Est. 2750
UP E-39 ..... 456 4055
Westport Oil Co., WP-7..... 136 3761
Orange County (Huntington Beach)—
Marfar Oil Co., Greer 1..... 98 4233

•Failures; †Junked; ¶Million cu. ft. gas.

Santa Barbara County (Santa Maria Valley)—
Brain & Kohler, Rumbusch 2 ..... 425 5250
Palm Holding Co., Bill, Jr., 4..... 280 5275
Union, Le Roy 8..... 638 5300
Sutter County (Rio Vista Gas)—
Texas, Huth 1..... ¶14 3894
Ventura County (San Miguelito)—
Continental, Grubb 25.....1906 6805
Ventura County (Ventura Ave.)—
Shell, Edison 26..... 785 6805

Colorado

Moffat County (Iles)—
Stanolind, Parkinson 19-M, nw sw ne 22-4n-92w ..... • 3540

Illinois

Clay County—
Carter, Keller 1, c w½ sw sw 4-2n-5e 44 3003
Carl Robinson, Tollivar 8, se sw ne 26-4n-7e 23 2374
Clinton County—
McCullough et al, Coe 3, se sw sw 14-1n-1w ..... • 1451
T. R. Kerwin et al, Schafly Farm Tr. 1, sw sw nw 20-2n-1w ..... • 1500
Jack Darnell et al, Beckmeyer 1, c s½ ne nw 32-3n-2w ..... • 1236
Edwards County—
Ohio, Markham 2, ne sw nw 32-2n-14w 945 3103
A. F. Dye, Kent 1, sw nw sw 32-2n-14w 1800 3124
Fayette County—
Carter, Crum 3, nw nw se 16-7n-3e 12 1587
Miller 2, ne nw ne 16-8n-3e 20 1512
Weber 3-D, c w½ se se 29-8n-3e 250 3097
Franklin County—
Shell, CW&F Coal Co. 9, se c se nw 24-6s-2e 117 2107
Bialock & Walters, Rice 2, se sw ne 35-6s-2e 275 2140
Gallatin County—
Oil Management, Inc., Egyptian T&T 8, nw se se 16-8s-10e 50 2436
Hamilton County—
A. J. Hammer, Seel 1, w½ se nw 5-5s-5e ..... • 3463
Sinclair-Wyoming, Prince 2, sw sw nw 31-5s-7e 26 3071
Shell, Cox "B" 1, se se se 11-6s-5e 130 3387
Nohava 2, sw sw nw 13-6s-5e.... 350 3296
Braden 2, nw nw sw 13-6s-5e.... 641 3308
Carter, Johnson 1, se sw se 12-6s-6e 295 3094
W. C. McBride, Mayberry 1, ne se se 12-6s-6e 134 3202
Texas, Lockwood 4, c nw ne ne 14-6s-5e 181 3405
Lockwood 3, ne ne ne 14-6s-5e.. 615 3326
Johnson 9, se ne se 7-6s-7e..... 656 3030
Johnson 8, ne ne se 7-6s-7e..... 450 3013
Davis 12, sw nw nw 8-6s-7e.... 150 3024
Kewanee Oil Co., Culpepper 1, sw sw se 14-6s-5e 67 3115
Reward Oil Co. et al, Lockwood 2, nw nw nw 23-6s-5e 445 3151
Magnolia, Sloan 7, nw nw se 23-6s-5e 24 3136
Cameron Oil Co., Lockwood Comm. B-1, ne sw nw 24-6s-5e..... 363 3250
Jasper County—
Craft & Powers, Wade 1, w½ sw nw 5-5n-14w 500 2841
Shulman Bros., Acklin 1, c se ne sw 5-6n-10e 200 2799
Texas, Jourdan 4, nw ne nw 8-6n-10e 410 2799
Pure, Roberts Cons "B" 2, e½ sw se 33-6n-10e 464 2825
Bigards Cons. "A" 1, e½ sw ne 33-6n-10e ..... • 2850
Jefferson County—
E. J. Ruwaldt, Rynski 1, se nw nw 35-2s-1e 175 2009
Gulf, Com. et al 2, ne nw sw 1-3s-1e 200 1953
Lawrence County—
Ross Phar, Catt 2, se se sw 23-2n-12w 130 1317
Richland County—
J. N. Webster, DesBouef 1, nw ne ne 18-2n-11w ..... • 274
Sinclair-Wyoming et al, All States Life 2, ne se nw 22-2n-11w..... 24 1962
W. C. Brown et al, Koertge 1, s½ se sw 29-2n-14w ..... • 3200
Shelby County—
Carter, Storm 1, sw se nw 28-10n-4e ..... • 2285
Wabash County—
O'Meara Bros., Utter "A" 2, sw nw ne 17-1s-12w ..... ¶.5 2420
E. O. Olds et al, Fairgrounds 5, sw ne se 21-1s-12w 75 1995
Seaboard, Guisewite 2, se c ne nw 21-1s-12w 200 1993

Summary of Drilling Operations in the United States, Week Ended December 13, 1941

	WELLS COMPLETED								[1]PERMITS FOR NEW WELLS				
		New Wells Drilled for Oil and Gas											
	Total for Week	Oil Wells	Gas Wells	Failures	[3]Miscellaneous	Initial Production	Total 1941	Total this Date 1940	This Week	Total this Month	Total 1941	Total this Date 1940	Year Total 1940
Alabama	.....	.....	....	....	....	.....	5	9	....	.....	.....	.....	.....
Arkansas	2	1	....	1	....	155	184	178	1	4	177	147	153
California	30	26	1	3	....	11,293	1,149	1,059	20	45	1,139	1,069	1,042
Colorado	1	.....	....	1	....	.....	19	10	....	.....	.....	.....	.....
Florida	.....	.....	....	....	....	.....	1	2	....	.....	.....	.....	.....
Georgia	.....	.....	....	....	....	.....	1	.....	....	.....	.....	.....	.....
[1]Illinois	70	55	1	12	2	14,843	3,815	3,836	94	184	4,571	4,389	4,532
Indiana	10	5	1	4	....	397	518	507	18	37	[2]313	.....	.....
Iowa	.....	.....	....	....	....	.....	6	1	....	.....	.....	.....	.....
Kansas	30	21	....	6	3	23,893	2,142	1,914	39	94	2,258	1,981	2,048
Kentucky	6	3	....	3	....	145	324	357	10	19	[2]206	.....	.....
Louisiana	35	23	6	6	....	4,137	1,507	1,648	27	71	1,686	1,635	1,658
Michigan	28	16	2	10	....	38,458	833	1,165	22	79	975	1,077	1,093
Mississippi	5	4	....	1	....	2,232	197	183	....	.....	.....	.....	.....
[1]Missouri	.....	.....	....	....	....	.....	65	31	....	.....	9	26	26
Montana	15	9	2	4	....	580	226	188	....	.....	.....	.....	.....
[1]Nebraska	3	3	....	....	....	756	90	44	....	.....	95	66	69
[1]New Mexico	10	9	....	1	....	924	387	605	8	12	390	545	559
New York	36	19	1	....	16	116	1,054	938	....	.....	.....	.....	.....
Ohio	32	5	14	12	1	359	1,714	1,069	....	.....	.....	.....	.....
Oklahoma	36	20	....	11	5	3,001	2,065	2,061	31	84	2,248	1,810	1,888
Pennsylvania	67	40	10	1	16	44	3,589	3,210	....	.....	.....	.....	.....
South Dakota	.....	.....	....	....	....	.....	.....	1	....	.....	.....	.....	.....
Tennessee	.....	.....	....	....	....	.....	16	12	....	.....	.....	.....	.....
Texas	242	170	13	53	6	80,317	10,055	9,482	174	388	11,636	10,713	11,170
Utah	.....	.....	....	....	....	.....	3	3	....	.....	.....	.....	.....
West Virginia	16	4	10	2	....	512	728	616	....	.....	163	759	782
Wyoming	8	4	1	3	....	595	131	150	....	.....	.....	1	1
Total this week	682	437	62	134	49	182,757	30,824	29,279	444	1,017	25,866	24,218	25,021
Total last week	586	376	48	107	55	167,718	30,142	28,796	573	573	25,422	23,749	25,021
Total this year	30,824	18,849	2,447	6,702	2,826	8,472,391	.....	.....	....	.....	.....	.....	.....

[1] This tabulation includes those states where weekly data are available; figures for Missouri date from August 10, 1940; Nebraska from August 3, 1940.
[2] No data available before June 14, 1941.
[3] Includes old wells deepened, water-intake, gas input, and salt water disposal wells.

United States Well Completions—*Continued*

Company, Well and Location	Init. Prod. Bbls.	Depth
Washington County—		
E. J. Bergundthal, Dement 1, sw nw ne 32-2s-4w	*	2395
Wayne County—		
Watkins & Weinert, Kinkaid 2, w½ se nw 36-1s-7e	280	3363
Pure, Sumpter 1, w½ sw sw 6-1s-8e	*	3185
Keith "C" 3, e½ se ne 36-2n-7e	27	3025
New Penn Dev. Corp., Hart 1, e½ sw se 30-2s-9e	18	3373
Gass & Frazier, Honn 1, nec nw ne sw 26-1n-9w	*	1499
Texas, Schultz 5, s½ se se 21-1n-6e	918	3191
Schultz 6, s½ ne se 21-1n-6e	120	3232
Ray 1, s½ nw se 26-1n-6e	286	3173
Ohio, Taylor 2, n½ nw sw 23-1n-6e	319	3195
Deep Oil Co., Barker 1, w½ se ne 26-1n-6e	*	3190
First Nat'l Pet., Case et al 2, w½ sw ne 28-1n-6e	84	3188
Gulf, Legg 1, nw se se 33-1n-6e	587	3220
Jablonski, Bratton 2, sw nw ne 35-1n-6e	10	3040
White County—		
Sinclair-Wyoming, Reddy 1, se se se 2-7s-8e	347	2950
Longhorn Oil Co., Helm 24, se se ne 22-3s-14w	220	2176
H. H. Weinert, Inc., Miller Bros. et al 8, nw ne ne 30-3s-8e	310	3209
Pure, Calvin "A" 6, ne ne nw 9-4s-14w	97	2860
Calvin "A" 7, c ne se nw 9-4s-14w	13	2860
Ivan White, Ford Heirs 3, ne nw se 34-4s-14w	72	2604
Superior, Ford et al 4, sw sw ne 34-4s-14w	100	2598
Ford "D" 15, sw se nw 34-4s-14w	75	2840
Sun, Straw 1, se se nw 7-4s-10e	151	2551
Greathouse 39, sw sw nw 4-5s-14w	225	2935
OLD WELLS DEEPENED		
Wabash County—		
Patton Oil Co., Stillwell 1, sw nw sw 27-1n-12w (otd 1683)	40	1689
White County—		
Tide Water, Bacon 1, ne se ne 5-5s-14w (otd 2991)	104	2924

Indiana

Company, Well and Location	Init. Prod. Bbls.	Depth
Gibson County—		
Continental, Bozeman Land 54, c w½ w½ 23-3s-14w	168	2170
Kleiderer "A" 17, nw ne ne 33-3s-14w	85	2812
Kingwood Oil Co., Kirk 1, nw se ne 26-1n-10w	115	1832
Jasper County—		
National Pet. Co., Stewart 1, nw ne ne ne 26-29n-5w	*	991
Pike County—		
Indiana Oil Prod., Atkinson 9, c sw nw 23-1s-9w	4	1316
Posey County—		
Sinclair-Wyoming, Kleinschmidt 1, sw sw se 12-7s-13w	*	2820
Shelby County—		
Jacob Gaheimer, Fee 1, n½ ne ne 19-13n-8e	25	857
Spencer County—		
T. F. Seitz, Parsley 1, ne nw nw se 5-8s-6w	*	650
Sullivan County—		
Souers, Huff 1, ne nw se 34-8n-10w	*	825
Hossier Pub. Utilities, Gosnell 232, ne nw nw 11-9n-9e	¶130	910

Kansas

Company, Well and Location	Init. Prod. Bbls.	Depth
Barton County—		
Skelly, Hoffman 1, c w½ sw sw 18-16s-11w	*	3374
Stanolind, Kultgen 4, c s l sw ne ne 26-16s-13w	3000	3397
Continental, Everleigh 1, se se nw 11-18s-13w	*	3376
Vickers, Kerr Est. "C" 1, c n½ ne se 24-19s-11w (pb 3357)	3000	3365
C. E. Ash et al, Scheufler 2, c w½ nw nw 18-20s-11w	1431	3339
Butler County—		
Cities Service, Wilson 207, 100 ft e of nw sw ne 8-25s-5e	35	2046
Chesney 120, sw ne se 21-25s-5e	10	2206
Stokes 96, sw sw ne 33-25s-5e	13	1999
Edwards County—		
Stanolind, Arensman "A" 1, c s½ ne se 23-25s-19w	*	5166
Ellis County—		
Cities Service, Colahan "B" 10, c w½ ne ne 25-11s-17w	3000	3410
Ellsworth County—		
Skelly, Smith 3, c n½ se nw 32-17s-10w	610	3250
Greenwood County—		
K. T. Weideman, Lewis "A" 12, nw sw sw 25-27s-8e	25	2452
Marion County—		
Rigg-Mac, Kaiser 3, c w½ sw se 33-17s-4e	644	2393
Pratt County—		
Skelly, Stephin "C" 3, c s½ sw ne 35-27s-11w	1048	3527
Reno County—		
Hall & Landon, Porter 1, c w½ sw se 7-24s-10w	1802	3713
Rice County—		
Phillips, Wesley 2, c n½ sw sw 35-19s-10w	3000	3293
Westgate-Greenland, Harder 1, c n½ nw sw 36-20s-6w (pb 3376)	45	3415
Luther Mackall, Mitchell 4, c s½ se se 4-20s-9w	93	3242
Russell County—		
Cities Service, Cook 4, 60 ft w of sw ne se 4-15s-12w	731	3279
Ochs 4, ne sw ne 23-15s-14w	69	3373
Stanolind, Major 2, nw se ne 4-15s-12w	456	3255
Letch "B" 2, c n½ se sw 4-15s-13w	3000	3008
Continental, Meier 1, nw sw ne 20-15s-12w	*	3338
Phillips Petroleum, Frederick 1, ne ne sw 9-15s-14w (pb 3046)	*	3314
Sedgwick County—		
Prunty Prod., Wright 1, nw nw se 12-26s-1w	101	3338
Stafford County—		
Deep Rock, Henry 3, c e½ sw sw 3-24s-11w	1740	3770
Sumner County—		
Central Pet., Stewart Est. 1, c s½ se nw 22-31s-3w	*	4536
OLD WELLS DEEPENED		
Butler County—		
National Ref., Lathrop 13, ne nw nw nw 17-23s-4e (otd 2125)	*	2380
Cities Service, Wilson 194, nw ne sw 8-25s-5e (otd 1830)	40	1979
Jefferson County—		
McLaughlin & Young, McCloud 1, c sw nw 4-10s-20e (otd 1596)	*	1919

Kentucky

Company, Well and Location	Init. Prod. Bbls.	Depth
Hancock County—		
McDonough & Co., Voyles 1, 3-O-33	5	460
Henderson County—		
H. C. Farmer et al, Hallmark 1, 3-O-26	*	1700
Ohio County—		
DeHart et al, Phillips 1 (6), 22-O-33	*	397
Union County—		
Ohio, Brisco 1, 20-O-18	135	1346
Sun, et al, Reyburn 3, 20-O-18	*	1412
Webster County—		
I. B. Browning, Ashby 1, 22-N-24	5	1582

North Louisiana

Company, Well and Location	Init. Prod. Bbls.	Depth
Bossier Parish (Sligo)—		
Triangle Drlg. Co., Thigpen-Herold A-6, 13-17n-12w	23	3127
Caddo Parish (Vivian-Pine Island)—		
A. R. Hancock, Helpman 13, 16-21n-16w	15	1017
Catahoula Parish (Wildcat)—		
H. L. Hunt, Tensas Delta A-1, 7-4n-5e	*	6600
LaSalle Parish (Little Creek)—		
Placid Oil Co., Tremont A-17, 30-9n-2e	¶31	2740
Tremont A-18, 30-9n-2e	150	2712
Goodpine B-10, 27-9n-2e	150	2745
H. L. Hunt, Goodpine F-102, 30-9n-2e	¶27	2740
LaSalle Parish (Nebo)—		
Placid Oil Co., J. M. Whatley 1, 36-8n-2e	¶5	3690
Federal Land Bank 1, 40-7n-3e	150	4096
LaSalle Parish (Olla)—		
H. L. Hunt, Goodpine F-36, 18-10n-3e	20	2395
Placid Oil Co., Louisiana Central 118, 29-11n-3e	¶29	2900
LaSalle Parish (Urania)—		
Arkansas Fuel Oil Co., Tremont A-15, 35-10n-1e	50	1537
Sabine Parish (Converse)—		
Ross Nelson, Jr., DeSoto Corp. 1, 27-10n-13w	*	2170
Cryer Drlg. Co., Whitney Corp. 1, 7-9n-13w	*	3225
Union Parish (Monroe)—		
J. & H. Oil Co., Union Power Co. C-8, 16-21n-3e	¶6	2190
Noe & Woods, S. Smith 1, 30-20n-4e	¶1½	2145

South Louisiana

Company, Well and Location	Init. Prod. Bbls.	Depth
Acadia Parish (Ritchie)—		
W. N. Finnegan, Jr., McManus 1	*	3517
Nicklos-Vincent & Welsh, Hayes 5	65	3504
Calcasieu Parish (Vinton)—		
E. H. Robertson, Vincent Heirs 3	162	3922
Cameron Parish (West Hackberry)—		
Stanolind, Gulf Land Co. 32	235	10005
Evangeline Parish (Ville Platte)—		
Texas, E. B. Norman 4	108	10394
Iberia Parish (Jefferson Island)—		
Texas, Jefferson Island Salt 8	235	8237
Jeff Davis Parish (Mermentau)—		
H. M. Naylor, Acadia Development 1	87	10348
Jeff Davis Parish (Woodlawn)—		
Union Sulphur, O. Miller 7	*	10062
LaFourche Parish (Golden Meadow)—		
Bering Oil Co., Doucet 3	150	5675
Plaquemines Parish (West Bay)—		
Gulf, State PP 2	333	7400
St. Charles Parish (Paradis)—		
Texas, Sunset 3	388	10454
St. Martin Parish (Lake Chicot)—		
Amerada, State 2-411	160	9500
St. Martin (Anse la Butte)—		
Glassell & Glassell, Moresi Oil 4	240	6228
Louisiana-Florida Pet. Corp., Central 2-A	27	1650
Stanolind, Emelie Bergeron 1-B	301	6338
St. Martin Parish (West Lake Verrette)—		
Shell, Norman Breaux 9-A	137	2411
St. Mary Parish (Bayou Sale)—		
Humble, Wooster 1	616	10185
Terrebonne Parish (Caillou Island)—		
Texas, Caillou Island 72	*	8101
Vermilion Parish (Erath)—		
Texas, Broussard 2	335	11640

Michigan

Company, Well and Location	Init. Prod. Bbls.	Depth
Antrim County—		
E. B. Strom, Ruston 1, nw se nw 23-31n-8w	*	1438
Allegan County—		
Davell Pet. Co., Peterham 1, nw nw se 8-3n-14w	*	1537
Arenac County—		
Rayburn & Major, Moore B1, ne sw se 22-19n-3e	1600	2937
Bay County—		
C. W. Jones, Laracey 1, ne se se 27-15n-4e	160	2941
Chapman Oil Co., Reisteiner 4, nw nw sw 2-14n-4e	350	2900
Clare County—		
Taggart Bros., Flynn 101, c sw 30-20n-6w	¶17½	1347
Isabella County—		
Belvidere Oil Co., Moor 1, sw nw nw 21-13n-5w	*	1390
Osceola County—		
Cook & Voorhees, Kremmin 1, c s½ se se 8-18n-10w	*	3700
Taggart Bros., Eichenberg 27, c nw 17-18n-10w	¶7¾	1226
Crawford 2, sw se nw 5-18n-17w	*	1569
Pure, Richards 1, c s½ ne se 19-18n-10w	5400	3613
Dunn 2, c n½ sw se 20-18n-10w	1800	3543
Mitchell 3, c n½ ne nw 30-18n-10w	225	3619
Ohio, Auten 3, c n½ se nw 29-18n-10w	1600	3555
Johnson A1, c s½ sw sw 29-18n-10w	4040	3583
Sitts 2, c s½ nw sw 29-18n-10w	8000	3594
Fatum 4, c s½ se se 30-18n-10w	2400	3597
Johnson 2, c n½ nw ne 30-18n-10w	12,000	3634
Gordon & Bolger, Sweet 1, c s½ ne ne 20-18n-10w	*	3599
Ottawa County—		
John Newell, Rapp 4, se ne sw 23-7n-13w	45	1880
Roscommon County—		
Sun, Hunt 1, w½ nw nw 29-23n-4w	*	3408
Freeman Oil Co., State A4, c s½ ne sw 34-21n-3w	650	3421
Tuscola County—		
Smith Pet. Co., Partlo 1, c e½ nw sw 28-14n-8e	90	2870
Van Buren County—		
Herb Caley, Piper 1, sw se ne 11-2s-16w	*	1053
Homrich & Kendall's Powers 2, ne sw ne 10-1s-14w	50	1295
Bridger Basin, Mechling 2, nw sw sw 1-1s-14w	48	1276
D. C. Hay, Pineau 1, nw ne se 10-1s-16w	*	1090

Mississippi

Company, Well and Location	Init. Prod. Bbls.	Depth
Madison County (Wildcat)—		
C. L. Morgan, Whitworth 1, 4-11n-3e	672	4840
Yazoo County (Tinsley Dome)—		
Hassie Hunt, Sorrells 5, 31-10n-2w	280	4981
E. C. Johnston, Tom Stutts 4, 31-10n-2w	480	5077
Key & Beckett, Adams 1, 35-10n-3w	*	5275
Kirby Pet. Co., G. W. Stutts 7, 30-10n-2w	800	5032

Montana

Company, Well and Location	Init. Prod. Bbls.	Depth
Glacier County (Cut Bank)—		
Glacier Prod. Co., Bailey 1, c ne sw 7-33n-5w	184	2958
Corrigeux 4, cwl nw 21-33n-5w	35	2982
Corrigeux 5, csw nw 28-33n-5w	91	3069
Texas Co., Lindquist 4, c n nw 20-32n-5w	50	2837
Morrison 10, cs nw 22-35n-6w	55	2930
Willis 4, se se sw 18-32n-5w	35	2872

[*Continued on next page*]

United States Well Completions—*Continued*

Company, Well and Location	Init. Prod. Bbls.	Depth
MONTANA—Continued		
Liberty County (Whitlash)—		
Western Nat. Gas Co., Hicks 3, c se ne 27-37n-4e	*	1950
Phillips County (Bowdoin)—		
Montana-Dakota, Robinson 644-A, c nw sw 15-32n-33e	*	556
Toole County (Devon)—		
C. L. Smith, Lewis 1, ne sw nw 34-33n-2e	¶¼	766
Toole County (Kevin)—		
Big West Oil Co., Anderson 1, sw sw ne 12-35n-4w	*	2490
Colonel Kevin Oil Co., Govt. 10, c nw ne 27-35n-3w	*	1705
Coolidge & Coolidge, Benjamin 1, c nw nw 9-33n-1w	¶1½	1260
Imperial Craig Oil Co., Martin 6, cel se se 18-35n-1w	60	1639
M. F. Toles, Norum 12, sw se sw 33-35n-2w	50	1510
L. J. Yealy, Shaw 16, nw nw ne 35-36n-2w	20	1745
Nebraska		
Richardson County—		
Powers Oil et al, Albin Est. 1A, sw nw sw 10-1n-14e (pb 2246)	106	2275
Ohio, Bucholtz 7, sw se ne sw 17-1n-16e (pb 2300)	73	2328
Skelly, Henry Roesch 2, c e½ sw nw 36-3n-16e	577	2486
New Mexico		
Eddy County (Wildcat)—		
Nay Hightower et al, Grier 1, c nw nw 31-16s-31e	390	3118
Eddy County—		
Acrey & Acrey, State 1 sec nw 36-17s-27e	43	512
Emperor Oil Co., Puckett 4-B, c ne se 25-17s-31e (pb 3844)	30	4110
Kersey & Co., State 1, nec se 36-17s-27e	4	590
Paton Bros. et al, Magruder 3, nec sw 35-17s-27e	90	441
Ployhar & Cunningham, State 2, near swc nw nw 30-17s-28e	50	514
O. A. Roberts et al, Patterson-State 2, sw se se 25-17s-27e	2	520
Lea County (Lovington)—		
Amerada, State 7-L-A, c nw sw 1-17s-36e	225	4946
Lea County (Maljamar)—		
V. W. Shaw et al, Pearsall 1-B, c sw nw 4-18s-32e	90	3799
Socorro County (Wildcat)—		
C. M. Joiner Oil Corp., Belen 1, 16-3n-1e	*	845
New York		
Allegany County—		
Ebenezer Oil Co., Herrick farm, Alma	8	1344
Messer Oil Co., Vosburg farm, Bolivar	7	1354
Albert Oil Co., Swift farm, Bolivar	6	1325
Pure Penn Pet. Corp., Christman farm, Bolivar	5	1434
South Bolivar Oil Co., McKelvey farm, Bolivar	5	1363
Brothers Oil Co., Crandall farm, Bolivar	5	1374
Nichols & Crowley, Wetherby farm, Bolivar	8	1531
Wheel Oil Co., LeSuer farm, Scio	5	1344
Albert Oil Co., Coats farm, Alma	5	1052
Dick Oil Co., Bradley farm, Bolivar	6	1461
Bradley Bros., Inc., Withey farm, Bolivar	7	1429
Marsh Oil Co., Fay farm, Bolivar	6	1440
Bliven Hill Oil Co., Rogers farm, Amity	5	926
H. W. Patterson et al, Fuller farm, Amity	5	832
Messer Oil Co., Koehler farm, Genesee	6	1353
Conklin & Wightman, Wetherby farm, Clarksville	5	1319
Willetts & Paul Corp., Willets farm, Genesee	8	1563
New York Oil Co., Brown farm, Bolivar	7	1365
Rufus Scott et al, Scott farm, Bolivar	7	1426
GAS WELL		
Quadrangle Drilling Corp., George Lewis farm, West Union	¶16	5100
WATER INTAKE WELLS		
Vosburg Oil Co., Green farm, Bolivar	..	1280
Messer Oil Co., Vosburg farm, Bolivar	..	1386
Pure Penn Pet. Co., Christman farm, Bolivar	..	1410
South Bolivar Oil Co., McKelvey farm, Bolivar	..	1343
Boyd Oil Co., Drum farm, Wirt	..	1388
Ebenezer Oil Co., Vincent farm, Scio	..	1068
Bradley Prod. Corp., Rolls farm, Alma	..	1339
Curt Oil Co., Williams farm, Alma	..	1427
George Oil Co., Scott farm, Alma	..	1377
J. P. Herrick et al, Howe farm, Bolivar	..	1382
L. H. Thornton et al, Fassett farm, Willing	..	1170
M. E. Goodell Est., Schrader farm, Willing	..	1266
H. W. Patterson et al, Browning farm, Scio	..	647
Blivan Hill Oil Co., Rogers farm, Scio	..	846
L. & D. Oil Co., Browning farm, Scio	..	580
Forest Oil Co., Randolph lot, Wirt	..	1377
Ohio		
Ashland County—		
Robinson Co., Deviney 9	*	2898
Athens County—		
H. B. Walker & Co., Midkiff 1	*	1740
Bern Oil & Gas Co., Keney 2	*	1112
Coshocton County—		
Allen Willey, Ashcraft 2	*	3280
Fairfield County—		
City Natural, Sullivan 1	¶0.07	2308
Knox County—		
H. E. Perkins, Lepley 1	*	3016
Prall Co., Smith 1	*	2755
Licking County—		
National Drilling Co., Claggett 1	¶0.88	2332
Shuff & Bucy, Beall 1	*	2575
H. Penick et al, Lynn 5	¶0.4	2217
Armbruster & Stricker, Davis 6	*	600
Medina County—		
H. C. Bishop, White 1	*	2586
East Ohio, Queen 1	¶0.36	2752
Meigs County—		
Nolan Shuster, Nelson 6	¶ 1.0	906
Downie et al, Miller 2	¶0.23	644
Monroe County—		
Snpangler & McCort, Christman 1	¶0.03	1865
Muskingum County—		
Ohio Fuel, Wentz 1	*	4326
Noble County—		
William Patten, McKee 4	¶0.05	1980
Perry County—		
Palm Oil Corp. Inc., et al, Cooper 1	*	2750
Bert Davis et al, Yaney 1	¶0.94	2800
Preston Oil, Shaw 1	340 & ¶0.05	3309
Putnam County—		
M. Hubble, McCullough 4	5	1386
Stark County—		
Lyons et al, Bachtel 2	¶0.86	4787
Tuscarawas County—		
Brendel Prod. Co., Reif 1	¶0.26	1183
Washington County—		
Graham Oil Co., Schenkel 1	8	1405
R. W. Porter et al, Fee 14	¶0.4	1260
Joseph R. Hall, Hall 59	1	415
Wayne County—		
Dave Shaffer, Sprowls 1	¶0.22	3473
J. L. Skinner, Zuercher 2	¶0.4	842
Wood County—		
C. H. Schwyer, Whittaker 1	5	1380
Wyandot County—		
Ohio Oil Co., Chatlain 1	*	2385
OLD WELL DRILLED DEEPER		
Athens County—		
Ohio Fuel, Fleming 3	¶0.17	808
Oklahoma		
Bryan County—		
Pure, Thomas (205) 2, ne nw ne 28-5s-7e	103	5029
Little (106) 6, ne ne nw 34-5s-7e	119	4880
Carter County—		
Walter Neustadt, Choate (160) 10, nw sw ne se 18-4s-2w	*	2405
S&D Daube, Merrick et al 2, nw ne ne se 20-4s-2w	244	2201
Coal County—		
Maglonia, Pope 1, se se ne 34-1n-9e	*	1705
Jackson County—		
Henry & Minor, Dorman 1, se ne nw 15-1n-20w	38	1567
Kay County—		
Dave Morgan, School Land 1, c s½ sw sw 16-29n-1e	30	3455
Kiowa County—		
H. J. Sherman, Kelsey 1, nw ne sw 20-7n-17w	45	1038
Shell, Watkins "A" 1, aprx, nw se nw 20-7n-17w	*	1896
Latimer County—		
LeFlore, Orr RO47, 12-6n-22e	*	2426
Logan County—		
Sinclair Prairie, Suit 3, sw se ne 7-17n-1w	140	5429
Continental, Metzger 1, se se ne 12-17n-2w (pb 5169)	125	5542
Marshall County—		
Pure, Metz 3, sw nw nw 28-5s-7e (pb 5029)	250	5043
Okfuskee County—		
Shell, Curry "B" 3, ne sw sw 26-11n-8e	269	3499
Oklahoma County—		
Mid-Continent, Smith 4, nw ne se nw 15-11n-3w	80	6527
Okmulgee County—		
Brady Bros., Carter 1A, se c se 10-15n-14e	*	856
Osage County—		
Stanolind, 7, se nw sw 17-27n-8e	35	2505
Pawnee County—		
Harwell & Burroughs, Isaacs 1, nw sw se 25-20s-6e	*	3187
J. P. Brady et al, Stoneman 4, ne sw se 28-20n-9e	25	2728
Pottawatomie County—		
S. K. Viersen, Aldridge 1, ne nw nw 27-8n-4e	345	3952
Crosbie & Atlantic, State 6, nw ne se 16-9n-4e (pb 4525)	*	4822
C. W. Sharp, Billington 2, se se se 21-9n-4e (pb 4686)	350	4721
Alma, Nadeau 2, c se ne 24-9n-4e	*	4355
Stanolind-Amerada, Bowling 2, se sw nw 25-9n-4e	94	4407
Hall & Jordan, Pensoneau 4, nw sw sw 36-10n-3e (pb 5233)	100	5241
Seminole County—		
G. Norville, Fleete 1, 290 ft n of se se se 14-5n-6e (pb 2067)	*	2285
Ramsey, Harjo 1, nw se se 24-6n-6e	*	4174
Barnsdall, Robertson 5, 60 ft, s of c s½ se 30-8n-4e	224	4319
Stanolind, Palmer 3, nw nw nw 33-9n-8e	*	4460
Stephens County—		
Rockett Oil, Mitchell 1, 60 ft w of se nw se 36-1s-5w	96	790
Skelly, Doak 1, se ne nw 36-1s-5w (pb 767)	1½	864
OLD WELLS DEEPENED		
Carter County—		
W. Smith, Ward 6, 110 ft s of se se se 18-4s-2w (otd 2098)	124	2315
Cleveland County—		
Delaney, Montgomery 1, se nw ne 13-7n-2w (otd 7650)	124	7657
Jackson County—		
Aloma Oil, Robertson 4, sw ne se 15-1n-20w (otd 1477)	10	1607
Osage County—		
Carl Matthews, 460, nw ne ne se 29-23n-9e (otd 2116) (pb 2107)	10	2162
Stephens County—		
Mudge Oil, Broadben 1, se c nw nw 1-2s-5w (otd 425)	20	730
Pennsylvania		
Armstrong County—		
Peoples Nat Gas, McCalferty 1	¶0.54	1530
Shaw & Townsend, Heyart 1	¶0.05	3450
T. W. Phillips, Wright 1	¶0.31	2045
Saxonburg Light & Heat, Johnson 1	¶0.03	2710
Clarion County—		
Kimmel Oil & Gas, Carlys 1	¶0.08	1553
Fayette County—		
Greensboro Gas, Colleries Co. 1	¶1.5	1313
Duquesne Gas, Johnson 1	*	2587
Green County—		
Manufacturers Lt. & Heat, Carter 1	¶0.08	3409
Peoples Natural, Eddy 2	¶0.06	3405
Washington County—		
Carnegie Natural, Gilkerson 2	¶0.52	885
Orrill et al, Kelsey 1	¶0.03	2905
OLD WELLS DRILLED DEEPER		
Green County—		
W. L. Walters et al, Chitter 1	*	2760
Washington County—		
Manufacturers Lt. & Heat, Chaney 2	¶0.36	2627
SOUTHWEST PENNSYLVANIA		
Bradford District—		
Lane No. 1 et al, Bing 412	2	..
Daly & Healy, Bing 500	1	..
Merry Bros. Burger	2	..
R. J. Brennan, Keating	1	..
Smith Estate, fee	1	..
Messer Oil Corp., Redfield	2	..
J. P. Kervin, fee	1	..
J. W. Coast, McCaffery	1	..
Carl J. Hamm, fee	1	..
Bradford Transit Co., 23 wells	23	..
Forest Oil Corp., 2 wells	2	..
Niagara Oil Corp., 3 wells	3	..
Water Intake Wells—		
D.Y.M. Corp. No. E Bing 466	..	..
Melvin Towne Oil Co., fee	..	..
Andrus, Lens & Daggett, Newton	..	..
Forest Oil Corp., 2 wells	..	..
Forest Petroleum Corp., 3 wells	..	..
Niagara Oil Corp., 5 wells	..	..
Middle District—		
United Natural Gas Co., G. E. Bower estate	*	..
Fryburg Motor Co., J. M. Perry	½	..
Hoffman & Cunningham, H. & L. B. Cross	2	..
Shannon Oil Co., Lot 106	1	..
Water Intake Wells—		
N. V. V. Franchot, Lot 107	..	..

United States Well Completions—*Continued*

West Central Texas

Company, Well and Location	Init. Prod. Bbls.	Depth
Brown County—		
Janellen Oil Co., Davis 3	¶0.8	1260
Jones County—		
Hedrick Oil Co., Akard 5	*	2163
Shackelford County (Wildcat)—		
L. L. Rector et al, Grimes 1	*	1304
Somervell County (Wildcat)—		
M. E. Davis & Plymouth Oil Co., Cousins 1	*	6505
Stephens County—		
T. S. Schroeder et al, Corbett 1 (pb 3955)	17	4721

North Texas

Company, Well and Location	Init. Prod. Bbls.	Depth
Archer County (Wildcat)—		
Dr. Ken Van Allen et al, Kelly 1	*	5637
Clark et al, Parsons 1	10	1439
W. R. Stafford et al, Richardson-Texaco 1	*	1270
Archer County—		
Henry Grace et al, Wilson 5-B	89	1530
Pet. Producers Co., King 23	45	1252
Rathke Oil Co., Roach 4	20	1277
C. H. Staley et al, Mangold 22 (new pay)	144	1735
Clay County—		
Houston Bowers et al, Rice 3	70	1129
Dudley-Fisher-Kahn, Henderson 1	96	1060
Henderson 2	110	1055
Henderson 3	73	1069
Henderson 4	66	1055
Taylor 1	*	1092
Fisher & Kahn, Taylor 3	80	1141
Geo. Golden et al, Roop 1	25	1118
E. C. Harlin, Jr., et al, Hansard 1	*	1188
Harper & Knappenberger, Bilbrey 8	30	1171
Homer Lee et al, Wiley 2	*	1211
Perkins-Cullum, Taylor 5-B	56	1141
Staley Oil Co., Hamilton 4	88	1132
Sussex Oil Corp., Shumake 26	66	1132
Clay County (Antelope)—		
Shell, Coburn 12	321	3250
E. Henderson 5	273	3244
Clay County (Halsell)—		
Bridwell Oil Co., Halsell 8-A	*	3908
Cooke County (Wildcat)—		
E. L. Wilson et al, Biffle 1	*	1266
Cooke County—		
Kimbell & Bohner, Hickey 4	*	2540
Jack County (Wildcat)—		
Magnolia, Borden 1	*	7048
Jack County—		
T. C. Jones et al, Roach 3	7	516
Chas. H. Kadane et al, Knox 1	*	3241
Joe. A. Worsham et al, Leach 7	300	2947
Montague County—		
Continental, Howard 24-A	9	955
W. H. Yeargin et al, Maddox 9	7	893
Montague County (Benton-Holmes)—		
Pace Pet. Co., Gilbert 1	175	3020
Throckmorton County—		
Burk Royalty Co., Housley 18	17	722
Housley 19	*	825
R. F. Gilman et al, Tuton 3	*	740
Tuton 4	*	750
Walter Neustadt et al, McKeichan 6	5	670
J. B. Putman et al, Fee 3	31	677
Fee 5	26	675
R. E. Sweeney et al, Kelly 3	15	575
Wichita County (Wildcats)—		
L. T. Burns et al, Bynum 1	*	2100
W. N. Maer et al, Bolin 1	*	1474
Wichita County—		
Continental Oil Co., Waggoner Bros. 20-C	*	1895
Coppock & Coleman, Warren 20	58	1765
Hanlon & Buchanan, Burnett 12-A	14	700
W. H. Peckham et al, Munger 6	9	1129
C. F. Schram et al, Daume 3	10	684
J. E. Simon et al, Heiserman 1	*	2010
Wolf & Hull, Daume 7	9	694
Wichita County (K-M-A)—		
Fain-McGaha Oil Corp., Griffin 7-A	656	3842
W. H. Hammon-Hanlon-Buchanan, Fassett-Tuttle 45	528	4012
Wichita County (K-M-A-Ellenberger)—		
Tide Water Associated et al, Chas. Pettit 17-E	2088	4335
Wilbarger County (Harrold)—		
Big Six Oil Co., Lesh 1	384	3174
Wilbarger County—		
J. A. Wood & Son, Womack 1-D	24	1768
Young County—		
Cable Oil Co., Snider 17	*	630
Snider 19	*	627
Snider 20	*	638
Snider 21	10	597
Snider 22	9	593
Snider 23	*	606
Snider 24	10	596
Snider 25	*	594
Snider 26	*	636
Snider 27	*	635
Snider 28	*	716
Snider 29	10	570
R. P. Dorian & Mitchell, League 1 (pb to 4434 ft)	294	4977
S. O. Ewing-H. A. Thompson, Courtney 1-A	12	838
E. L. Orr et al, Pace-Strange 2	5	702
Reno Oil Co., Boren 17	6	1088
H. B. Street et al, Jack 8-C	4	546
Jack 9-C	6	542
Young County (Wildcat)—		
M. R. Stipe et al, Schlegel 2	*	1140
OLD WELL DEEPENED		
Montague County—		
Benton & Holmes, Davenport 17-B (otd 2368)	*	2748
Lesh & McCall, Davenport 3 (otd 1671)	124	2497
Montague County (Wildcat)—		
Bruce Sullivan et al, Johnson 1 (otd 4920)	*	6532
Wilbarger County (Consolidated)—		
Consolidated Oil Co. et al, Ancell 2-C (otd 3776)	864	4292

Texas Gulf Coast

Company, Well and Location	Init. Prod. Bbls.	Depth
Chambers County (Oyster Bayou)—		
Sun, Felix Jackson 6	672	8344
Harris County (Humble)—		
L. J. Sessions, L.O.&R. Co. 3	17	1027
Jefferson County (Lovell Lake)—		
Humble, Jefferson Land Co. 23	84	7788
Matagorda County (Lucky)—		
Stanolind, John E. Thompson 1	181	9700
Orange County (West Port Neches)—		
Texas Co., Stark 15	99	4545
Wharton County (Withers)—		
F. W. Michaux, Pierce Est. 13-A	168	5414
Pierce Est. 35-A	156	5395

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United States Well Completions—*Continued*

Texas Panhandle

Company, Well and Location	Init. Prod. Bbls.	Depth
Carson County—		
Cities Service, Burnett 43-A	¶23.3	2527
Holmes et al, Quinn 11	373	3120
Gray County—		
Phillips, M. Davidson 3	366	3078
M. Davidson 4	227	3094
Skelly, Lovett 5	91	2982
Taylor 5	136	2884
Hutchinson County—		
Gulf, Cockrell 9-C	39	3152
Gulf-Panhandle Ref. Co., Dial 108	149	3090
Parton & Holt, Whittenburg 10	102	3013
Pennowa Oil Co., Perkins 2	390	3068
Power Pet. Co., Haile 12	18	3017
Phillips, Jordan 17	71	2993
Lizzie 8	362	3244
Shell, Harvey Sisters 37-B	393	3105
Moore County—		
Phillips, Melvin-Anthony 1	¶29	3355
Shamrock O&G Co., Fowlston 1	¶29	3203
A. J. Tays 1	¶260	3227
Texoma, Coon-Sneed 9-M	¶10.8	3068
Sneed 26-P	¶12.4	2800
Wheeler County—		
Charlotte Oil Co., Mitchell 3	109	2085
Smith Bros. Ref. Co., Johnson 22	17	2515

West Texas

Company, Well and Location	Init. Prod. Bbls.	Depth
Andrews County (Emma)—		
Montecito Corp., Cowden 2	1277	4175
Cowden 8	838	4175
Bailey County (Wildcat)—		
Broderick-Calvert & Amon Carter, Hayward 1	•	5601
Borden County (Wildcat)—		
M. L. Richards et al, Drum 1	•	3060
Cochran County (Slaughter)—		
Anderson-Prichard Oil Corp., Neal 4	1112	4960
Atlantic, Boyd-Humble 32	1544	5051
Devonian et al, Duggan 10-A	1355	5054
Geo. P. Livermore, Inc., Boyd-Texaco 14	943	5046
Magnolia, Woodley 19	1013	5000
Crane County (Dune)—		
Wasomes Oil Co., University-Standard 2-8	161	3289
Crane County (Sand Hills)—		
Gulf, Waddell et al 33	6044	4631
Magnolia, Lea 5	292	4710
Crane County (Jordan)—		
Texas Co., University 8-D	2137	3565
Crockett County (Soma-Noelke)—		
J. S. Pittman-Geo. Atkins, Noelke 1-A	¶30	1500
Ector County (Foster)—		
Atlantic Ref. Co., Henderson 15	258	4260
M. J. Delaney et al, Johnson-Conoco 8-A	452	4165
Forest Dev. Corp., Moss 1-K	•	4500
Sinclair Prairie, Johnson 28-B	657	4220
Ector County (North Cowden)—		
Arrow Drlg. Co., Midland Farms 3	741	4640
Sinclair Prairie, Johnson 26-D	1200	4165
Stanolind-Magnolia, Holt 4	329	4857
Fisher County (Wildcat)—		
P. R. Long et al, Maberry 1	•	3289
Gaines County (Cedar Lake)—		
Stanolind, Green 2	559	4830
Gaines County (Seminole)—		
Amerada, Northrup-Carr 2	83	5360
Harry W. Bass et al, Austin 7	626	5205
Humble-T. P. Coal & Oil Co., Blakemore 5-B	474	5345
Glasscock County (Wildcat)—		
E. M. Wahlenmaier-Steve Currie, T. P. Land Trust 1	•	3565
Hockley County (Slaughter)—		
Honolulu, Frazier 12	1247	5005
Mallett 11-A	1061	5048
Slaughter 26-B	1245	5030
Slaughter 29-B	1889	5014
Magnolia, Mallet 10-D	1516	4990
Mallet 15-J	1189	5047
Stanolind, Slaughter 40-B	962	5025
Texas Co., Cattle Raisers 5	2081	5011
Slaughter 62	1540	5014
Slaughter 64	1474	5018
Slaughter 66	1366	5015
Howard County—		
FHE Oil Co., Snyder 2-B	145	2954
Pecos County (Abell)—		
Magnolia, Silverman-State 4	1427	5427
Phillips, Rixse 2	1084	5445
Pecos County (Apco)—		
Anderson-Prichard Oil Corp., Boren 3	•	4956
Pecos County (Conry-Davis)—		
Magnolia-Geo. Abell, Myrick-State 1 (new pay) (pb 2440)	194	3994
Pecos County (Lehn)—		
Burk Roy. Co., Sullivan 5-C	84	1737
Pecos County (Taylor-Link)—		
H. G. Eastham et al, University-Skelly 1	•	1710
Pecos County (Walker)—		
Cities Service, White-Baker 1-B	363	2145
Upton County (McCamey)—		
T. P. Coal & Oil Co, Lane 48-A	214	2187
Winkler County (Wildcat)—		
Magnolia, Walton-State 20	•	8445
Winkler County (Emperor)—		
Skelly, Halley 44	866	2890
Winkler County (Keystone)—		
Standard of Texas, Baird 34, sec 12	399	3395
Yoakum County (Wasson)—		
American Liberty, Futch-Texaco 5	535	5216
Humble, Randall 14	442	5119
OLD WELLS DEEPENED		
Crockett County (Todd)—		
Stanolind et al, Todd 5-A (otd 1385)	•	1818
Upton County (McCamey)—		
T. P. C&O Co., Lane 34-A (otd 2128)	160	2192

East Texas

Company, Well and Location	Init. Prod. Bbls.	Depth
Kilgore Area—		
M. Nathan et al, Florence 3	96	3593
M. R. Newnham et al, Protho 4	1200	3644
Longview Area—		
Elsep Oil Co., Mattox 4	1000	3630
Tide Water Associated, Lake Devernia 51	3600	3492
Anderson County (Cayuga)—		
Tide Water Associated-Seaboard, Sullenberger 6	191	4046
Anderson County (Long Lake)—		
Carter-Gragg Oil Co., McGaughey 2-A	81	5317
Tex Harvey Oil Co., Collier 1	118	5423
Hunt Oil Co., Broyles-Wolverton 8	75	5398
Falls County (Wildcat)—		
T. M. Smart et al, Gill 1	•	1335
Leon County (Wildcat)—		
Hunt Oil Co., Sullivan-Magnolia 1	•	6729
Madison County (Wildcat)—		
Sun, Day 1 (core)	•	2505
Rains County (Wildcat)—		
Tex Harvey Oil Co., Hall 1	•	4617
Robertson County (Wildcat)—		
R. O. Pinkston et al, Anderson 1	•	1516
Smith County (Chapel Hill)—		
Chapel Hill Gas System, Walton 1 (dual well)	¶240 & 254	8280
Upshur County (Wildcat)—		
Placid Oil Co.-H. L. Hunt, McCain 1	•	4460
Van Zandt County (Wildcat)—		
Robt. P. Lake et al, Allred 1	•	4104
Wood County (Hawkins)—		
Humble, B. F. Allen 4-D (444¾-ac)	425	4836
G. W. Atkins 3 (341.44-ac)	270	4884
G. W. Atkins 4 (341.44-ac)	389	4868
L. A. Bryan 1-C (310.23-ac)	407	4895
J. P. Crisman 3 (151.8-ac)	373	4841
B. Hargett 2 (119.37-ac)	381	4843
Sam Jeffrey 2 (49.35-ac)	447	4858
W. T. Minshew 2, Acct. 1 (110.73-ac)	341	4867
J. H. Smith 3, blk 22	301	4855
Roger Lacy-S. Price, Maberry 3 (51¾-ac) (pb to 4840)	336	6538
C. L. McMahon et al, Pouncey 3 (55.11-ac)	367	4785
L. H. Snider 2 (107.8-ac)	389	4855
Loyce Phillips et al, M. Snider 2 (62.14-ac)	253	4845
Stanolind, Miller 2 (118½-ac)	460	4852
Texas Co., Green 1 (28½-ac)	381	4596
A. D. Snider 1 (210.99-ac)	370	4851

Southwest Texas

CORPUS CHRISTI DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Brooks County (Alta Mesa)—		
Standard of Texas, Mestina 21-Tr 1	166	2545
Goliad County (Hords Creek)—		
Brown & Wheeler, Kauffman 3-C, perf 1995-2005	¶2.5	5010
Jackson County (Ganado)—		
Texas, M. Hultquist 3	650	6500
Jackson County (Lolita)—		
Humble, L. Ranch 22-A	450	5937
Jackson County (Maubro)—		
Foster Pet. Corp., Westhoff & McCrory 1	750	5230
Humble, M. Strauss 4	350	5233
Jackson County (N. LaWard)—		
Magnolia, Gordin 5	500	5227
Jackson County (West Ranch)—		
Magnolia, West 222-A	550	5530
West 227-A	250	5764
Jackson County (West Ganado)—		
Pure, Halamicek 1	550	6098
J. Kopecky 1	450	6375
Jim Wells County (Haldeman)—		
Magnolia, Seeligson 2, Unit 2	•	6498
Jim Wells County (Orange Grove)—		
Kilgore Developers, Koehn 1	•	5630
Nueces County (Agua Dulce)—		
Richardson Pet. Corp., McCoy 7	500	7005
S. E. W. Oil Corp., Pfluger 2-B	450	7220
Nueces County (Bentonville-King)—		
Southern Minerals, King 22	325	5610
Nueces County (Minnie Bock)—		
Clark & Cox, Robertson 3	250	3817
Nueces County (North Luby)—		
Stanolind, Gillette 1-A	500	7340
Refugio County (S. McFaddin)—		
Jay Simmons, Rutherford & Gulfshore, Fagan 8	500	5684
Refugio County (Tomoconnor)—		
Quintana, Williams 31-A	1750	5925
San Patricio County (Plymouth)—		
Plymouth, Welder 121-C	650	6147
San Patricio County (Odem)—		
Seaboard, M. C. Smith 3	650	5450
Wellington, Welder 2-C	500	5463
Victoria County (N. McFaddin)—		
Texas Gulf, Kester 2	¶32	5900
Victoria County (Victoria)—		
D. N. Jolley, Piegsa 1	19	3072

SAN ANTONIO DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Bexar County (Gas Ridge)—		
Gas Ridge, Hamilton & Swain 30	1	466
Southwest Dr. Co., Covel 26	1.5	422
Covel 40	1.5	443
Bexar County (Wildcat)—		
W. S. Hill, Barker 1	•	1847
OLD WELL DEEPENED		
Maverick County (Wildcat)—		
Humble & Wellington, Indio Cattle Co. 2, otd 3013	•	5998

LAREDO DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Duval County (Gov't Wells)—		
Sun, Wiederkehr, outpost, new sd.	150	2940
Duval County (Kohler)—		
P. L. Keller, Peters 1, outpost	¶20	2625
Duval County (Lundell)—		
Humble, White 18-B	12	1575
Duval County (Peters)—		
Mills Bennett, Peters 1-C	•	4004
Duval County (Piedre Lumbre)—		
Texas, Duval Ranch 23	31	1998
Duval County (Wildcat)—		
Humble, Welder 3-E	•	4303
Jim Hogg County (Colorado)—		
C. Andrade III, Trevino 7-H	500	2866
Humble, King-Colorado 30-B	500	2881
Jim Hogg County (Manila)—		
Achning & Daubert, Woods & Dannely 1-A, outpost	•	2559
Jim Hogg County (Wildcat)—		
Sun, Jones 1, new field	¶20	6009
McMullen County (S. Campana)—		
Argo, Edrington 3-I, new sd 2554-68	¶20	2573
Starr County (Rincon)—		
Continental, Slick 13-A	625	4175
Starr County (Wildcat)—		
Magnolia, Hinojosa 2	•	2982
Otto Woods, Bass 1	•	2035
Webb County (Killam)—		
Mims & Abel, Laurel 13	26	2024

West Virginia

Company, Well and Location	Init. Prod. Bbls.	Depth
Boone County—		
Hope Natural, White & Hopkins	¶1.57	3099
Owens-Libby-Owens, Allen & Pryor 47	¶0.24	2636
Calhoun County—		
G. L. Cabot, Hardman 12	¶0.23	1769
Hope Natural, Frame 8570	15	1652
Clay County—		
Pitts. & West Va. Gas Co., Hall 7810	¶ 0.3	2126
Gilmer County—		
Pitts. & W. Va., Frashure 7831	¶0.13	1856
Harrison County—		
Norwood Gas Co., Consolidated Coal Co. 1	¶	3285
Jackson County—		
United Gas, J. W. Clem 1	¶0.97	5264
United Fuel, Shinn 5043	492	5089
Hope Natural, Boggess 1	¶6.16	5115
Kanawha County—		
Columbian Carbon Co., Taylor 2	¶1.3	5127
Lewis County—		
Cove Lick O. & G. Co., Rafferty 1	3 & ¶0.08	2678
Lincoln County—		
United Fuel Gas, Miller 4930	¶0.19	3191
Pleasants County—		
W. R. Hays, Hammett Heirs 1	2	1934
Upshur County—		
Cumberland & Allegheny Gas Co., Burr 313	•	2144
Wirt County—		
G. L. Shimer, Exline 4	•	1360

Wyoming

Company, Well and Location	Init. Prod. Bbls.	Depth
Carbon County (Bunker Hill)—		
Ohio, Brimmer 2, se nw ne 32-27n-89w	¶2½	1624
Carbon County (Elk Mountain)—		
Ohio, Union Pacific 1, nw ne ne 33-20n-81w	•	4803
Carbon County (Mahoney)—		
Sinclair-Wyoming, Govt. 5-F, c ne nw 34-26n-88w	25	4521
Fremont County (Circle Ridge)—		
Continental, Tribal 4, cwl se ne 1-6n-3w	•	635
Natrona County (Cole Creek)—		
General, 53-16-S (State) nw sw nw 16-35n-77w	75	4661
Park County (Frannie)—		
Stanolind, Rosenburg 11-X, se ne ne 26-58n-98w	170	3146
Park County (Oregon Basin)—		
Yale Pet. Corp., Atherly 2-A, sw sw nw 33-51n-100w	325	3525
Park County (Pole Cat)—		
Yale Pet. Corp., Northern Pacific 1, nw se sw 9-57n-98w	•	2822

WILDCAT REPORT
New Starts and Completions

CALIFORNIA

FIRST REPORTS

Fresno County—Richfieldd's Ponte 1, 30-13-17, Kerman area, lcn.

Kings County—Pacific O&G Dev. Corp.'s West Slope 2, 20-24-18, Pyramid Hills area, lcn.

Los Angeles County—Tide Water's Sesnon 1, 28-3-16, San Fernando area, lcn.

Tulare County—Richfield's Hewitt 1, 1-21-25, Tipton area, lcn.

COMPLETIONS

Alameda County—Shell's Nissen 1, 7-2-3, abnd 6563 ft, formation test 6027-6180 ft, showed slight blow, recovered 1305 ft slightly gas-cut mud; formation test 5951-6027 ft recovered 89 ft gas-cut mud, Altamont area.

Los Angeles County—Newton Dev. Co.'s Palos Verdes 1, 13-3-15, abnd 4500 ft, top schist 3900 ft.

ILLINOIS

FIRST REPORTS

Clay County—J. H. Jones et al's Neely 1, ne nw ne 13-3n-7e, lcn.

Clinton County—Holman & Denson's Kolmer 1, ne sw se se 21-1n-5w, lcn. F. A. McNeil et al's Vogel 1, ne ne ne 6-1n-2w, lcn.

Hamilton County—Zephyr Drlg. Co.,'s Stephens 1, e½ nw sw 22-5s-7e, lcn.

Iroquois County—Detrick & Stuart's Lockhart 1, sw se se 17-26n-12w, lcn.

Jackson County—H. A. Hoffman's 1, 300 ft e of se se ne 12-7s-2w, lcn.

Jefferson County — Graddy & Darrick's Thulkeid 1, n½ ne sw 36-4s-2e, lcn.

Madison County—Kiskadden et al's Fischer 1, se c sw ne 27-5n-8w, dr.

Saline County—Brooks et al's Suttner 1, n½ se nw 7-8s-7e, lcn.

COMPLETIONS

Clay County—Carter's Keller 1, c w½ sw sw 4-2n-5e, A. V. 2787-99 ft, td 3003 ft, initial production 44 bbls oil.

Clinton County — T. R. Kerwin et al's Schafly Farm Tr, sw sw nw 20-2n-1w, abnd, td 1500 ft.

Hamilton County—A. J. Hammer's Steel 1, w½ se nw 5-5s-5e, abnd 3463 ft.

Jasper County—Craft & Powers' Wade 1, w½ sw nw 5-5n-14w, McClosky 2829-41 ft, td 2841 ft, flow 500 bbls oil.

Shelby County—Carter Oil's Storm 1, sw se nw 28-10n-4e, abnd 2285 ft.

Wabash County—Patton Oil Co.'s Stillwell 1, sw nw sw 27-1n-12w, T. S. 1683-89 ft, td 1689 ft, prod 40 bbls oil.

Washington County—E. J. Bergundthal's Dement 1, sw nw ne 32-2s-4w, abnd 2395 ft.

Wayne County—Pure Oil's Sumpter 1, w½ sw sw 6-1s-8e, abnd 3185 ft. Gass & Frazier's Honn 1, ne c nw ne sw 26-1n-9w, abnd 1499 ft.

White County—Sun Oil Co.'s Straw 1, se se nw 7-4s-10e, T. S. 2540-2551 ft, td 2551 ft, 151 bbls oil.

INDIANA

FIRST REPORTS

Gibson County—Olds et al's Grecelius 1, nw sw sw sw 5-2s-10w, lcn.

Jasper County—National Pet. Co.'s Rose 1, se se ne 4-29n-5w, dr.

Posey County—Sells Pet. Co.'s Hickam-Elliott 1, sw se se 14-5s-14w, dr.

COMPLETIONS

Jasper County—National Pet. Co.'s Stewart 1, nw ne ne 26-29n-5w, abnd 991 ft.

Posey County—Lindas & Breuil's Graulich 1, nw se sw 13-7s-13w, Mans. 1118-33 ft, td 1133 ft, 20 bbls oil.

KANSAS

FIRST REPORTS

Barton County—Luther MacKall's Disque 1, nw nw nw 23-17s-11w, rur.

Chase County—O. J. Connell et al's Drummond 1, se se sw 15-20s-7e, mim.

Marion County—Rex & Morris' Bina 1, c w½ nw se 18-18s-4e, dr.

Norton County—Cities Service's Muir 1, sw sw nw 34-5s-21w, lcn.

Pratt County—Nadel & Gussman et al's White 1, c w½ nw ne 5-27s-11w, rur.

Reno County—Hinkle Oil et al's Schweizer 1, se se nw 31-22s-9w, rur.

Rice County—Nelson Drlg.'s Skiles 1, c s½ sw sw 8-18s-8w, dr. Luther MacKall's Willard Est.'s 1, c w½ nw ne 33-20s-10w, cellar.

Rooks County—Derby Oil et al's Steele 1, e n½ nw nw 9-6s-20w, dr.

COMPLETIONS

Barton County—Kiowa Drlg.'s Christiansen 1, c e½ ne sw 17-20s-12w, Anhy. 665 ft, Ft. Riley 1760 ft, Florence 1860 ft, Topeka 2800 ft, Base Oread 3104 ft, Lansing 3187 ft, stain 3211-15 ft, base K. C. 3422 ft, Congl. 3430 ft, Arbuckle 3460 ft, Arb. 3467 ft, abnd 3505 ft.

Leavenworth County—Mosbacher et al's Dolman 1, nw nw se 27-9s-20e, Miss. 1407 ft, td 1615 ft, hole full water, pb 1460 ft, pb 1425 ft, 1000 gals acid 1408-25 ft, pb 1416 ft, completed for 750 mfg gas.

Rooks County—Cities Service Oil's Catudal 1, se sw sw 14-10s-19w, Anhy. 1475 ft, Topeka 3113 ft, Lansing 3327 ft, Congl. 3602 ft, Rew Simpson 3650 ft, Arbuckle 3676 ft, abnd 3706 ft.

Russell County—Phillips Pet.'s Frederich 1, ne ne sw 9-15s-14w, Anhy. 835 ft, Ft. Riley 1790 ft, Florence 1890 ft, Topeka 2730 ft, td 3314 ft, water in hole, pb 3046 ft, pb 2775 ft, 2000 gals acid, 2½ bbls water & 3 gals oil per hour, 10 hrs., abnd.

KENTUCKY

FIRST REPORTS

Hopkins County—Henry Myers' Ky. Store & Ld. Co. 1, 16-H-24, dr. Ky. Nat. Gas et al's Tapp 1, 13-N-22, lcn.

Union County—Sinclair-Wyoming Oil Co.'s Vittitow 1, 2-O-18, lcn. Walter Sargent et al's Hagan 1, 11-P-27, dr.

COMPLETION

Henderson County—H. C. Farmer et al's Hallmark 1, 3-O-26, abnd 1700 ft.

NORTH LOUISIANA

FIRST REPORTS

Catahoula Parish—H. L. Hunt, Louisiana Central A-3, c nw nw 21-10n-6e, spd.

LaSalle Parish—Placid Oil Co., Goodpine F-15, sw se 15-8n-4e, spd. C. F. Coon 1, nw 39-7n-4e, rig. Atlantic Ref. Co., Catahoula Lake 1, c nw 27-7n-4e, mat.

Sabine Parish—Roscoe & Carter, R. McGill 1, c s½ se ne 1-10n-13w, rig.

COMPLETION

Catahoula Parish—H. L. Hunt. Tensas Delta A-1, ne se 7-4n-5e, abnd 6600 ft.

MICHIGAN

FIRST REPORTS

Allegan County—Fisher-McCall Oil & Gas Co.'s Henderson 1, nw nw nw 27-2n-12w, rig.

Arenac County — Rayburn & McKenna's Sivier 1, se nw sw 36-19n-4e, mim.

Saginaw County—Miller Bros.' Sutliff 1, se se se 10-9n-1e, rig.

Sanilac County—C. W. Teater's Cosgrove 1, c w½ sw nw 14-14n-12e, rust.

St. Clair County—Diamond Crystal Salt Co.'s Fee 19, s½ ne 1-4n-16e, rig.

COMPLETIONS

Roscommon County—Sun Oil Co.'s Hunt 1, w½ nw nw 29-23n-4w, Dundee 3245 ft, abnd 3408 ft.

Tuscola County — Smith Petroleum Co.'s Partlo 1, c e nw sw 28-14n-8e, Dundee 2638, ft td 2870 ft, 75 bbls day after acid, new field.

MISSISSIPPI

COMPLETION

Madison County—C. L. Morgan, Whitworth 1, nw sw 4-11n-3e, 28 bbls oil hourly after perforating 4824-33 ft, total depth 4840 ft, tops: Wilcox 1206 ft, Midway 3056 ft, Selma chalk 3840 ft, Eutaw 4778 ft.

NEW MEXICO

COMPLETION

Socorro County—C. M. Joiner Oil Corp.'s Belen 1, sec nw 16-3n-1e, abnd 845 ft.

OKLAHOMA

FIRST REPORTS

Hughes County—W. O. Allen's Rinn-Peters 1, nw ne sw 11-9n-8e, cellar & pits.

McClain County—F. W. Merrick, Inc.'s Jones 1, ne ne sw 1-5n-3e, woc.

Okfuskee County—John Droppleman et al's Doliy 1, ne ne sw 2-11n-7e, mi.

Payne County—Jones' Sumner 1, nw sw sw 6-18n-3e, cellar & pits.

Seminole County—Willis & Comail Oil Co.'s Amason 1, sw se ne 18-6n-8e, cellar & pits.

COMPLETIONS

Creek County—J. C. Williams' Steinman 1, ne nw nw 17-16n-10e, Wheeler sd 11-75-1220 ft, Os 1880-83 ft, Bartlesville 2360 ft, abnd.

Hughes County—W. K. Jones et al's Bryant 1, se sw sw 29-5n-9e, Calvin 655 ft, sand 910-25 ft, show oil, sand 1500-30 ft, abnd 2511 ft.

Okfuskee County — John Droppleman's Wahola 1, ne ne sw 15-11n-10e, Gilc. 2742-67 ft, Wapa. 3142 ft, Crom. 3147 ft, Mayes 3450 ft, Wd. 3651 ft, Miss. 3669 ft, Hunt. 3673 ft, cored 3149-69 ft, odor, Sylvan 3787 ft, Viola 3832 ft, Dense 3857 ft, Dolo. 3862 ft, 1st Wilcox 3884 ft, 2nd Wilcox 3887 ft, td 3946 ft, pb 3772 ft, perf, pb 3171 ft, perf, completed 3500 gas.

WEST TEXAS

FIRST REPORTS

Andrews County—Phillips Pet. Co.'s University-Andrews 1-A, c sw se sec 30, blk 10, lcn 8500-ft test.

Hockley County—Tide Water Associated's Commerce Trust Co. 1, nec lab 19, leag 31, Baylor CSL, lcn.

COMPLETIONS

Bailey County—Broderick & Calvert, Inc.-Amon G. Carter's Hayward 1, c of lab 24, leag 173, Sutton CSL sur, elev 3923 ft, top anhydrite 2250 ft, salt 2310 ft, abnd 5601 ft.

Borden County—M. L. Richards et al's Drum 1, swc ne H&TC sec 307, blk 97, elev 2459 ft, abnd hfw 3048-60 ft.

Fisher County—P. R. Long et al's Maberry

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E. C. DILGARDE, Mftr.'s Rep., Casper, Wyo.

1, sec 51.36-ac tr, A. A. Spring sur, elev 1859 ft, abnd 3289 ft.

Glasscock County—E. M. Wahlenmaier-Steve Currie's T. P. Land Trust 1, swc T&P sec 15, blk 34, T-4-S, elev 2664 ft, anhydrite 1140 ft, salt 1220 ft, lime 2570 ft, abnd 3565 ft.

Pecos County—Magnolia-Geo. Abell's Myrick-State 1-B, 21.95-ac strip, south offset Conry-Davis pool discovery, new shallow pay, 194 bbls 36.6-gr oil natural 1-in, perforations 2250-2300 ft, pb from 3994 ft.

Winkler County—Magnolia's Walton-State 20, c nw nw PSL sec 4, blk B-3, elev 2934 ft, brown lime 2245 ft, Yates 2365 ft, base Permian and top Devonian 7620 ft, abnd in cherty Silurian 8445 ft.

EAST TEXAS

FIRST REPORT

Cherokee County—Sinclair Prairie's T. F. Mullinix 1, sec of 93.2-ac tract, Evan Bolton sur, Maydelle area, mim.

Leon County—Placid Oil Co.'s J. S. Weakley 1, 1786 ft from n and 467 ft from w lines 310-ac tr, C. C. Sealy sur, 3½ mi nw Jewett, rur.

Navarro County—John R. Bunn et al's Cooke 1, 7100 ft from nw and 1200 ft from ne lines of west John White sur, sp and sd.

Red River County—Alex M. Snyder and O. T. Clark's Edmondson 1, swc of 60-ac tr, David Perkins sur, dr 690 ft. J. W. Shelor et al's McGuire 1, 1138 ft from n and 694 ft from w lines 151-ac tr, A. Allen sur, 2½ mi n Detroit, sp.

COMPLETIONS

Falls County—T. M. Smart et al's Gill 1, most w/nwc 179-ac tr, G. Basquez sur, Austin 604-805 ft, Buda 1056 ft, Edwards 1330 ft, abnd 1335 ft.

Leon County—Hunt Oil Co.'s Sullivan-Magnolia 1, sec 342½-ac tr, Frisco Ramirez sur, elev 382 ft, top Pecan 4800 ft, Gober 5490 ft, Austin 5845-6118 ft, Woodbine series 6504 ft, abnd 6729 ft.

Rains County—Tex Harvey Oil Co.'s Hall 1, 857 ft from n and 1212 ft from w lines 117-ac, Beebe Johnson sur, elev 540 ft, top Pecan 2208 ft, Austin 3378-3852 ft, Woodbine 4440 ft, abnd 4617 ft.

Robertson County—R. O. Pinkerton et al's Anderson 1, 1500 ft se of m/w/w line and 1517 ft sw of c of railroad, Jos. Webb sur, 6 mi nw Calvert, elev 303 ft, abnd 1516 ft.

Upshur County—Placid Oil Co.'s McCain 1, 467 ft out of m/n/nwc M. H. Minor sur, 2 mi se Lafayette, Pecan 2737-3207 ft, Austin 3885 ft, Georgetown 4390 ft, abnd 4460 ft. O. J. Perren et al's McClelland 1, 2000 ft from n and 2400 ft from w lines 744-ac tr, Miria del Torres sur, elev 379 ft. Pecan chalk 2587-3002 ft, Austin chalk 3668-3739 ft, 1st Woodbine sand 3739-66 ft, water 3854-55 ft, abnd 3977 ft.

Van Zandt County—Robt. P. Lake et al's Allred 1, 678 ft from n and 1990 ft from w lines 286-ac tr, John Blair sur, elev 455 ft, base Austin 3048 ft, top Woodbine 3608 ft, abnd 4104 ft.

Wood County—R. W. Fair et al's Boozer 1, swc of 50-ac lse, Dan Fuller sur, elev 509 ft, top Pecan chalk 2910 ft, Austin chalk 4550-4950 ft, abnd in Woodbine 5312 ft.

SOUTHWEST TEXAS

FIRST REPORTS

Bee County—Henderson Coquat's R. Borroun 1, 467 ft nwl, 1400 ft swl 80-ac lse, Benson sur, 12 mi e Oakville, sur csg 4000-ft test.

Duval County—Tom Graham's Villareal 1, 467 ft e hywy, 3627 ft n'ly nl 700.75-ac lse, San Andres gr, 7 mi s Benavides, dk 6500-ft test.

Jim Hogg County—Sun's Jones 2, 7650 ft wl, 9750 ft sl 44,322-ac lse, Agua Nueva de Abajo gr, 4570 ft ne No. 1, disc g well, mi 4600-ft test.

Live Oak County—C. N. Burns' Gurwitz 1, 467 ft se & sw ls blk 14, Cary sur, 3 mi s Three Rivers, lcn 2700-ft test.

Webb County—O. W. Killam's McLean 1, 467 ft sl, 990 ft el sec 610, 6 mi se Mirando City, lcn 3500-ft test. W. R. Ritchey's Walker 1, 467 ft ne and se ls w¼ 1012, 7 mi n Oilton lcn 3100-ft test.

COMPLETIONS

Bexar County—W. S. Hill et al's Barker 1, Tiejda sur, 4 mi w McDonna, abnd 1847 ft.

Duval County—Humble's Welder 3-E, Poitevent sur 224, 13½ mi nw San Diego, abnd 4303 ft. Sun's Wiederkehr 75, sec 55, 1 mi w N. Gov't Wells, sand 2936-40 ft, 5½ 2925 ft, elev 507 ft, comp 86.25 bpd 36.2-gr, 3/16 ch 80 lbs tp, 585 lbs cp, gor 180-1, opens Yegua prod.

Goliad County—Brown & Wheeler's Kauffman 3-C, blk 14, Zock sub, Hords Crk, t/sd 1990 ft, td 5010 ft, 5½ 2125 ft, perf 1995-2005 ft, 2.5 dry g open, SIP 1400 lbs, opens Frio sand.

Jim Hogg County—Sun's Jones 1, Agua Neuva de Abajo gr, 30 mi ne Rio Grande City, td 6009 ft, 5½-in cas 4284 ft, perf 4230-35 ft w/25 est 20 gas open; thru 5/32 1500 lbs equalized pressures, new field.

Maverick County—Humble & Wellington's Indio 2, Antonio Rivas gr, 22 mi se Eagle Pass, owdd fr 3013 ft, abnd 5988 ft.

McMullen County—Argo Oil Corp.'s Edrington 3-I, S. Campana, Gov't Wells sand 2534-68 ft, td 2573 ft, 5½ 2564 ft, perf 2559½-61 ft, gas and water 3/32-in ch 900 lbs equalized pressures, new sd.

Starr County—Magnolia's Hinojosa 2, Por 110, 3 mi sw Viboras, abnd 2982 ft. O. C. Woods' Bass 1, lot 9, blk 1, J & L Sub, 1 mi n Barbacoas fld, abnd 2035 ft.

NORTH TEXAS

FIRST REPORTS

Archer County—Continental's Ferguson 1, near ne nw se S. P. Ry. sec 9, cemented surface pipe.

Clay County—S. D. Johnson and Hunt Oil Co.'s Watson 1, 3090 ft from e and 330 ft from n lines of W. A. Farris sur A-148, rur 6000-ft test.

Cooke County—John Gray et al's Greek (Farr) 1, sec of S. Willis sur A-1102, lcn 3000-ft test.

Denton County—Hunt Oil Co.'s T. J. Jones 2, 4600 ft from n and 3500 ft from e lines J. Thomas sur A-1239, dr 1310 ft; E. W. Forrester 1, swc 759-ac, tr, J. W. Chandler sur A-303, rur.

Jack County—Roeser & Pendleton, Inc.'s Webb 1, nwc of J. E. Middleton sur A-2125, dr 2210 ft. Wilcox O&G Co.'s Bloodworth 1, 5218 ft from nw and 4125 ft from m/e/ne line of Wm. McDonald sur A-380, lcn Mississippian test. Joe Worsham et al's Sewell 1, 7823 ft from w and 4659 ft from s lines D. Crenshaw sur A-128, lcn 4000-ft test.

Montague County — Continental's J. F. Yowell 1, c n½ se ne sec 8, Limestone CSL, sp.

Young County—Kerlyn Oil Co.-Phillips Pet. Co.'s Stephens 1, se ne TE&L sec 1946, lcn. J. F. Milton et al's Logan 1, sw se TE&L sec 234, top Gunsight 952 ft, dr 970 ft. Worth Oil Co.'s Johnson 1, 750 ft due e of nec A. Wood sur, but in J. R. Cooke sur A-1405, lcn.

WEST CENTRAL TEXAS

COMPLETIONS

Shackelford County—L. L. Rector et al's Grimes 1, swc nw E.T. Ry. sec 75, blk 12, abnd 1304 ft.

Somervell County—M. E. Davis & Plymouth Oil Co.'s Cousins 1, 467 ft from se and ne lines 50-ac tr, John Echols sur A-124, 2 mi s Glen Rose, elev 814 ft, top Ellenberger 5450 ft, abnd 6505 ft.

NORTH TEXAS

COMPLETIONS

Archer County—Clark et al's Parsons 1, 650 ft from n and 150 ft from w lines blk 3, W. E. Robert-Meade Pasture sur, new pool, sand 1429-39 ft, pumped 10 bbls. W. R. Stafford et al's Richardson-Texaco 1, nwc of W. C. McCune sur A-943, abnd 1270 ft. Dr. Kenneth Van Allen et al's Kelly 1, nec blk 68, Harris subdiv, Bend 4933 ft, Barnett 5432 ft, Mississippian 5457 ft, Ellenberger 5510 ft, abnd 5637 ft. C. H. Staley et al's Mangold 22, 1040 ft from w and 70 ft from Mangold 20, blk 30, P. Castleman sur, new shallow pool in K-M-A deep, sand 1729-35 ft, pumped 144 bbls 41-gravity oil, plus 7 percent water.

Cooke County—E. L. Wilson et al's Biffle 1, 330 ft from e and 1450 ft from n lines Marshall University sur, abnd 1266 ft.

Jack County—Magnolia's Borden 1, 500 ft from w and 1000 ft from n lines 1591-ac tr, W. K. Smith sur, Palo Pinto lime 1600 ft, Bend 5515 ft, Barnett shale 6242 ft, Ellenberger 6873 ft, abnd 7048 ft.

Wichita County—L. T. Burns et al's Bynum 1, 150 ft from sw and 5200 ft from nw lines Loftin Vess sur A-318, abnd 2100 ft. W. N. Maer et al's Bolin 1, 1906 ft from ne and 1984 ft fro, nw lines tract, Loftin Vess sur A-318, abnd 1474 ft.

Young County—M. R. Stipe et al's Schlegel 2, ne sw TE&L sec 74, abnd 1140 ft.

TEXAS GULF COAST

FIRST REPORTS

Brazoria County — Glenn H. McCarthy's Munson 1, Bailey's Prairie area, 660 ft from se cor of Steve Smith 50-ac tract & 660 ft from nw & ne/l's of tract in HTB abst 297, spudding.

Fort Bend County—Jack Taylor's McFarlane 1, Long Point area, 8 mi e Needville, 80-ac tract, HTC 102, rig.

Pump Adaptation

Pomona Pump Company, 206 East Commercial Street, Pomona, California, has published a new industrial catalog giving practical information concerning pump adaptation for a wide range of duties under varying conditions.

The brochure contains illustrated case histories of varied applications. It also presents many practical drawings for laying in this type pump.

MEN IN THE INDUSTRY'S NEWS

H. B. KELLOGG was elected president and general manager, and F. E. McClaren was named vice president and sales manager of the Seaside Oil Company, Santa Barbara, California, at a recent meeting of the board of directors.

H. B. Kellogg

F. E. McClaren

Kellogg succeeds to the office vacated by the recent death of M. W. O'Brien. He has been vice president since September, 1936, and a director since February, 1937. He has been associated with the oil industry for more than 25 years.

McLaren joined the organization as assistant sales manager in July, 1936. He was made sales manager in February, 1937. In November of the same year, he was made a director.

E. O. BUCK of Houston, assistant director of production in Region 3 under the Office of Petroleum Co-Ordinator, was guest speaker at the December 8 meeting of the Petroleum Engineers Club of Fort Worth. He stated that the OPM is currently handling between 8000 and 16,000 priority applications daily.

GEORGE A. HILL, JR., president of the Houston Oil Company and Houston civic leader, has been elected a director of Federal Reserve Bank of Dallas, filling the vacancy created by the recent death of J. M. West of Houston.

D. R. LAUCK, Wichita, was elected president of the Kansas Independent Oil & Gas Association recently. Other officers are James Davis, Jr., secretary; John Harwood, treasurer; John Denham, Jr., Ralph Nicholson, and F. G. Stodder named vice presidents.

NELSON ROCKEFELLER, coordinator of commercial and cultural relations among the American republics, was principal speaker at the Houston Chamber of Commerce annual banquet December 12. Donald M. Nelson, director of priorities, originally scheduled to speak, could not attend. H. R. Cullen, Houston oil man, was arrangements chairman.

C. C. MILLER, geologist for The Texas Company, has been transferred from Corpus Christi to Corsicana. Bill Greenman, geologist, has been transferred from Houston to Corpus Christi. Jack Doyle, land man, has been shifted from Corpus Christi to Houston.

CHARLES H. KUNZE of Brooklyn, has been appointed manager of the marine transportation department of Socony-Vacuum Oil Company. He has been with the organization for 38 years, in the transportation department, becoming assistant manager in March, 1940. As manager, he has under his direction a fleet of 39 ocean going tankers flying the United States flag, in addition to some foreign-flag tankers, and barges and other vessels for inland waterways. He replaces Walter E. Simpson who has completed 40 years of service with the company and retired December 1.

CHARLES W. FOWLER, JR., geologist and petroleum engineer of Pantepec Oil Company of Venezuela, is now located at Cantaura, Venezuela.

G. D. PUTNAM, chief geologist, Globe Oil & Refining Company, Wichita, was elected president of Kansas Geological Society, recently. The new vice president is W. C. Imbt, Stanolind Oil & Gas Company, and the secretary-treasurer is Z. E. Stucky, Cities Service Oil Company.

O. C. NONWEILER, chief engineer, has been elected a director of Oklahoma Pipe Line Company, Tulsa. Paul Griffin, Bruce Ramsey, W. R. Finney of New York, and H. P. Hellinghausen were re-elected to the board.

Nonweiler came to the company a few months ago from Louark Producing Company, Shreveport, following the Louisiana company's merger with The Carter Oil Company.

The new board of directors subsequently re-elected Paul Griffin president. Griffin was formerly president and treasurer. Bruce Ramsey was re-elected vice president; H. P. Hellinghausen was re-elected secretary and elected treasurer; L. A. McStravick was elected assistant secretary and assistant treasurer.

JENE HARPER of Mt. Vernon, Illinois, president of the Franklin Tool Company, has announced purchase of the entire assets of the company, its dissolution, and organization of a new Franklin Supply Company. Home offices will be in Mt. Vernon with division offices in Salem, Illinois, and Mt. Pleasant, Michigan.

EUGENE KING has been appointed manager of Cleveland branch of John A. Roebling's Sons Company, succeeding Raymond R. Newell, retired. King was first employed by the company in 1917 and in 1926 he became salesman in charge of the Detroit area. In 1932 he was moved to northern Ohio, and from 1933 until July 1, 1941, he covered the ore loading, dredging, excavating, steel and rubber industries of the Akron district. Since July 1, 1941, he has been assistant manager of the Cleveland branch.

M. F. HAZEL, formerly district sales manager for Oil Well supply Company in East Texas, North Louisiana, and Arkansas, has been appointed assistant division sales manager with headquarters at Houston. He will supervise sales activities in "Oilwell's" Southwest Texas and Gulf Coast districts. The latter is a new district, comprising the areas formerly designated as the Houston district and the South Louisiana district. Hazel joined the company in 1930 at the Oil City, Pennsylvania, manufacturing plant. In 1937, after extensive field sales and engineering experience in various areas, he was appointed district sales manager for West Texas with headquarters at Odessa, where he was located until he transferred to Shreveport, in April, 1941, as district sales manager of the East Texas, North Louisiana, and Arkansas district.

RALPH H. CHRISTY, formerly district sales manager of Oil Well Supply Company's Houston district, has been appointed district sales manager of the company's new and much larger Gulf Coast district. He will continue to make his headquarters at Houston, from which point he will supervise field and branch store activities. Christy started with the company in 1930 as manager of the Houston store. In 1934 he was promoted to district sales manager for the Houston area, which is now a part of the new Gulf Coast district.

PAUL H. SHEPHERD, formerly district sales manager for Oil Well Supply Company in South Louisiana, has been appointed district sales manager of the company's East Texas, North Louisiana, and Arkansas district with headquarters at Shreveport. Shepherd started in 1916 at the Winchester, Kentucky, store, and has managed sales districts covering the Rocky Mountain area, the Texas Panhandle, East Texas, Louisiana, Arkansas, and Illinois.

JOHN H. ASHBAUGH has been appointed manager of manufacturing and engineering of Westinghouse Electric & Manufacturing Company's merchandising division. He has been acting manager of the two departments since January, 1941.

40 Pounds of JUNK RECOVERED by CAVINS!

Yes, we got several rock bit cones, a piece of slip segment and a ball peen hammer, then broke up and recovered a bridge plug . . . all from this hole, with the Cavins Automatic Hydraulic Suction Bailer. Jobs like this are all in a day's work with Cavins.

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He directs the manufacturing and engineering activities of the two Westinghouse merchandising division plants, in Mansfield, Ohio, and Springfield, Massachusetts. He started with the company in 1918 as a student engineer in the East Pittsburgh works. In March, 1931, he went to the merchandising division as assistant manager of engineering of the Springfield works. In less than a year, he was named manager of engineering.

R. A. FEEMSTER has been appointed special sales representative for Kobe, Incorporated. His duties will extend throughout the Mid-Continent in connection with special sales and engineering projects. Feemster attended the school of petroleum engineering of Oklahoma University, obtaining his B.S. degree in 1932. He was employed in the engineering and production department of Phillips Petroleum Company for two years, after which he was for five years associated with various equipment companies doing creative work in subsurface drilling and completion projects. In April, 1941, he became associated with Kobe as district representative in Oklahoma City. He will be located at Oklahoma City.

E. W. LARSEN of Long Beach recently was elected chairman of the Los Angeles Basin Chapter of the American Petroleum Institute. Guy Edwards was named vice chairman, Tom Murphy secretary-treasurer, and Earle M. Boggess assistant secretary-treasurer. The officers will serve in 1942.

The advisory board, terms ending in 1942, is composed of Fred Miller, R. W. Cypher, C. J. Dean, Irving Funk, Harold Preston, W. H. Morgan, R. S. Arneal, R. A. Werts, B. W. Gillespie, H. E. Winter, Roy Southworth, W. S. Workman.

The advisory board, terms ending in 1943, is composed of F. A. Graser, H. M. Oliver, Chas. T. Reichert, Robert P. Phillips, George A. Collins, Richard Fenton, J. R. Harman, E. W. Clark, R. W. Marshall, P. T. Martin, E. H. Musser, J. R. Thomas.

GLENN BISH has been transferred by Ohio Oil Company from the Houston production division to Mt. Pleasant, Michigan, in charge of the Michigan production division.

J. E. MILLER of Service Engineering Company, Okotoks, Canada, has been appointed Canadian representative for Martin-Decker Corporation, Long Beach, California, in sale of drilling control instruments.

CHARLES VAN VLECK, field manager, and C. E. Buchner, executive manager, Independent Petroleum Association of America, spoke at a conference of the organization at Vernon, Texas, December 11.

JOHN LEE JOINER, Dallas operator who was associated with C. M. Joiner, his father, in the discovery of the East Texas field, was fatally stricken December 6 in Durant, Oklahoma.

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BOWEN SAFETY JOINT

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Two-piece sturdy construction. Standard internal and external dimensions. Packers of proven efficiency. Constant distribution of torque load between both sections.

Will not release or back-off except at the will of the operator.

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The finest magneto at any price anywhere. Wico authorized sales and service is everywhere.

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THE ONE BOLT COUPLING

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For Maximum Efficiency:

Forged Steel for High Pressures; Malleable for Medium Pressures; "Big Inch" for Pump Suctions.

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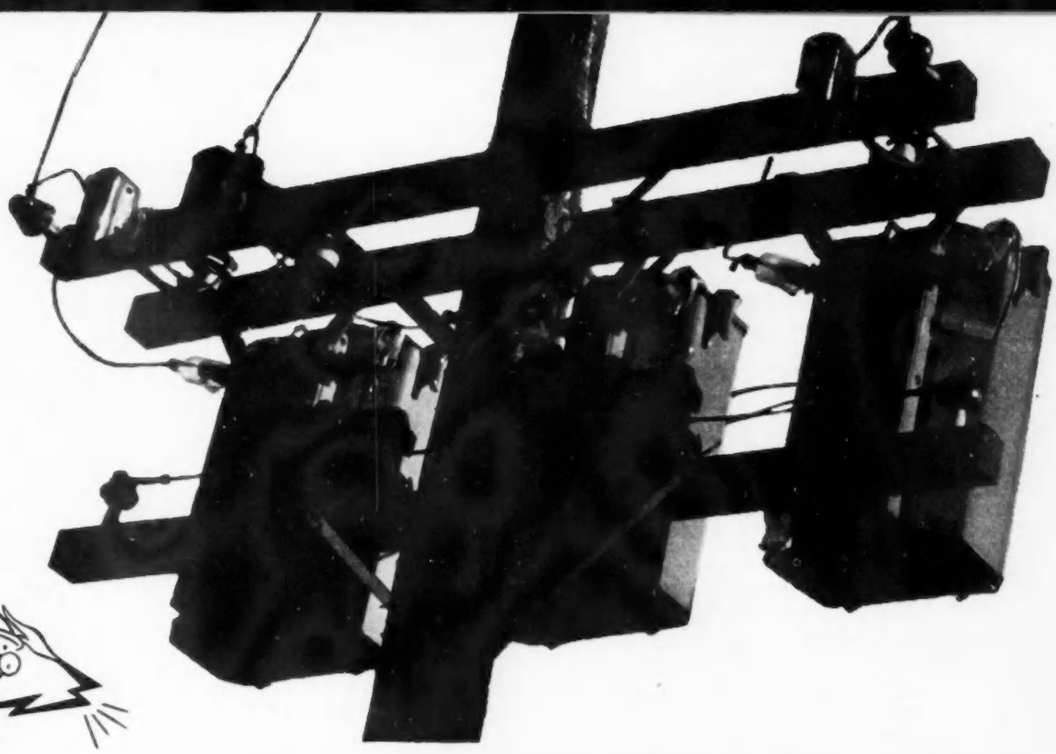

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Box 1498, Oklahoma City, Oklahoma

Squeaks from the Bull Wheel

Like Everything Else

"Do you charge batteries here?"

"Sure, ma'am."

"Then put in a new one and charge it to Dad."

Our Troubles

The bride of a few weeks noticed that her husband was depressed.

"Gerald, dearest," she said, "I know something is troubling you, and I want you to tell me what it is; your worries are not your worries now, they are our worries."

"Oh, very well," he said, "We've just had a letter from a girl in New York, and she's suing us for breach of promise."

Won't Freeze Anyway

Mr.: "Darn it, this motor is heating up worse than ever."

Mrs.: "Isn't it provoking—and I had a man come in only this morning and disconnect the radiator."

No Fugitive

"Nora, you've left fingerprints on nearly every plate."

"Well, ma'am, it shows I ain't got a guilty conscience, anyway."

Inspired Advice

Little Mary's father had spanked her. That night when she said her prayers, she concluded with this petition:

"And please don't give daddy any more children. He don't know how to treat those he's got now."

Wise Sister

"Well, in any case I'll always be a brother to you."

"If I had any use for a brother I could reach under the sofa and get one now."

Over the Din

"Why do you prefer Wagner?"

"Because he composes about the only kind of music one can hear above the conversation."

Beaten to the Punch

Did you tell her, when you proposed to her, that you were unworthy of her? That always makes a hit.

I was going to, but she told it to me first.

Law of Average

A young lady was on a sight-seeing tour in Detroit. Going out Jefferson Avenue the driver of the bus called out places of interest.

"On the right," he announced, "we have the Dodge home."

"John Dodge?"

"No, Horace Dodge."

"Out the right we have the Ford home."

"Henry Ford?"

"No, Edsel Ford."

"On the left we have Christ Church."

A fellow passenger hearing no response from the young woman, tapped her on the shoulder and said:

"Go ahead, lady, you can't be wrong all the time."

Wear and Tear

Life Insurance Examiner: "I don't think I can pass you. You seem all worn out. What's the matter?"

Prospect: "Your agent nearly talked me to death before I surrendered."

Sophisticated

He: "Something seems to be wrong with this motor. It——"

She: "Don't be so foolish. Wait until we get off the main road."

Absent Mindedness

"I'm very absent-minded," said the professor. "I often find names and telephone numbers written in my notebook, but I can't remember what persons they represent. Recently I had a general checking up. The name and address of one man baffled me, so I wrote to him asking if he had ever heard of me and if I was supposed to do something for him.

"He wrote back a cordial letter, saying that I had already done it. He was my wife's first husband."

A Cutting Remark

"Are you the man who cut my hair last time?"

"I don't think so, sir. I've only been here six months."

When you hit bottom water, there's no time for monkey-business. Minutes mean dollars. Seal off water quickly, efficiently, with Eagle Lead Wool. This soft, flexible metallic wool becomes a solid plug under tamping pressure. Fills hole completely—seals tiniest cracks and crevices. Non-corrosive, permanent. Eagle Lead Wool is rapidly installed with Eagle Wire Containers. They're shaped like a cartridge to carry wool to water cavity in one mass. Sizes to fit all casings.

Be ready for bottom water—order today through your jobber.

These 3 Eagle Bearing Metals meet most requirements..

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Eagle Dreadnaught — for extreme speed and pressure conditions

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Eagle Outlasta — for medium speed and pressure conditions

•

Eagle Durable — for low speed and pressure conditions

EAGLE LEAD WOOL

Seals off bottom water PRONTO!

EAGLE EP PICHER

THE EAGLE-PICHER LEAD COMPANY
CINCINNATI, OHIO

NOTES FOR THE Equipment Buyer and User

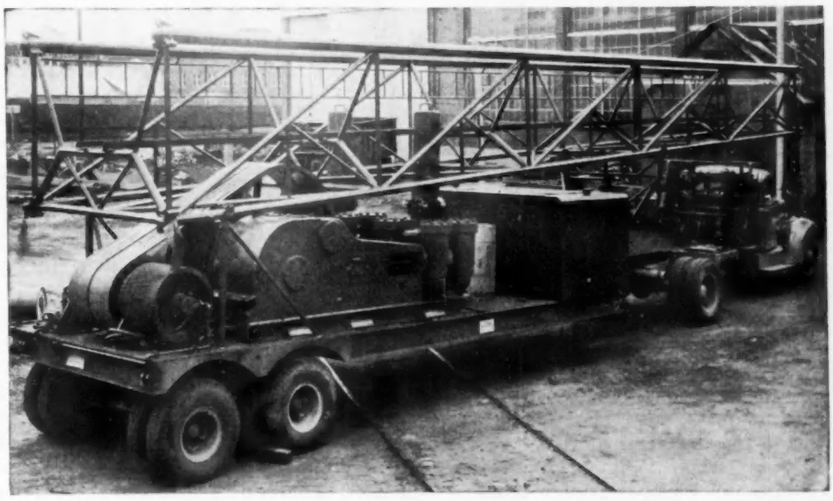
Trailer

HOBBS MANUFACTURING COMPANY
UNIT RIG & EQUIPMENT COMPANY

A tandem lowboy trailer used to transport drilling equipment has been announced by Hobbs Manufacturing Company of Fort Worth. Mounted on the trailer is a dual pump assembly and half of a derrick. This is said to be one of the latest rigs built in the oil field by Unit Rig & Equipment Company, Tulsa. The other half of the rig is mounted on a tandem truck, which includes engine and drawworks assembly and other half of derrick.

The rig, now being used near Scotland, Texas, can be moved legally over highways. In the past in building portable rigs on trailers, the practice has been to build the entire rig complete on the trailer, thus causing them to be over-length and over-weight.

Hobbs engineers built the platform of the trailer to specifications in order that on delivery of trailer Unit Rig & Equipment Company only had to fit its equipment on trailer floor and bolt it down.



Hobbs-Unit Rig Trailer

Indirect Heater

BLACK, SIVALLS & BRYSON

Black, Sivalls & Bryson, Inc., Oklahoma City, has announced development of "water bath" type of flow-line heater for heating high-pressure gas or high-pressure gas and oil mixtures.

A welded horizontal tubular firebox is installed in the lower part of the heater shell. A removable fluid tube bundle constructed from pipes is bolted in place above the horizontal firebox. Before operation is started, the shell is filled with water.

Features claimed by the manufacturer are: 1. Safety: Indirect method of heating keeps inflammable fluid farthest from direct flame. Heating is even without excessively high local temperatures. 2. No heater firebox burnouts: The fresh water surrounding the firebox is non-corrosive and does not contain sufficient depositable hardness to cause scale to form on the firebox. 3. No caked-up flow tubes: The low, even water-bath temperature minimizes scale or lime deposits. 4. Special built-in submerged choke eliminates choke freezing due to hydrates and allows medium-pressure inexpensive flow tube bundle to be used. 5. Special corrosion-resistant flow tube bundles can be used for handling sulphur-laden, corrosive oil or gas.

Heat is transferred first from the fire-tubes to the surrounding fresh water and then from the water through the walls of the flow tubes into the gas or oil passing through. The BS&B "submerged positive choke" eliminates freezing at the choke which usually occurs when heaters are set upstream near the well head, and eliminates the use of expensive extra heavy pipe in the flow tube bundle made necessary when heater is set downstream. With this choke the necessary pressure reduction takes place within the hot-water-bath section of the heater. Any possible hydrate formation will occur at the choke or immediately downstream from it. Because of the surrounding hot water the hydrates will be melted before the choke or line is plugged.

Vacuum Gauge

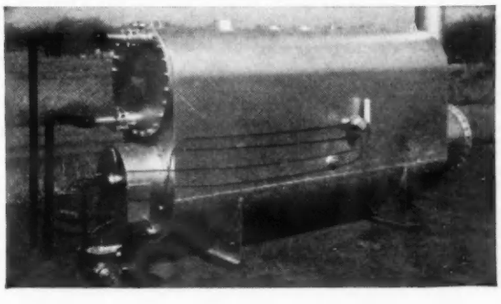
MARTIN-DECKER CORPORATION

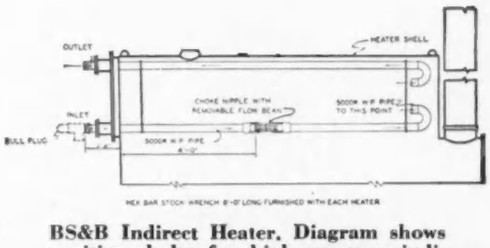
Martin-Decker Corporation, Long Beach, California, recently announced a two-element Vacuum Gauge—one element for each engine on a spark-plug drilling rig.

This unit replaces the steam torque gauge on the "Sealtite" drilling control, permitting an accurate check to be kept on the amount of torque or work expended by each engine while drilling, and also aiding in maintaining the most efficient engine speeds. On a normal two-engine hookup, one element of the gauge is connected to the manifold of the drawworks-rotary table engine, the other to the engine driving the power pump. (The latter engine is coupled with the rotary-table engine when bringing drill pipe out of the hole.)

Gauge readings with the instrument are in "inches of vacuum," and an important use of the unit is in checking the amount of work being done by the engines during various drilling functions. For example, with the pump engine registering 3-inch vacuum and the drawworks-table engine registering 8-inch, an overload on the pump engine would be indicated. Steps could then be taken to correct the overload by checking carburetor gaskets for leaks, gearing the engine down, or installing greater power—thus reducing engine wear and tear. On rigs using three engines, the vacuum gauge connection is installed only on the drawworks and rotary table engines to obtain load readings.

The Martin-Decker vacuum gauge dial is installed in the Sealtite drilling control instrument board right before the driller, and the two gauge hands permit direct readings to be made on each engine individually. The recorder is attached to the No. 1 engine gauge only. The mechanism is calibrated to indicate and record 30 inches of vacuum at sea level. When the engine (if in good condition) is idling, the gauge





BS&B Indirect Heater. Diagram shows positive choke for high pressure indirect heater operation.

REVERSIBLE HYDRAULIC EQUIPMENT

ATLAS "LITTLE GIANT" PULLER-PRESS

(manually operated) . . . . does the job

Small enough for one man to place in operation. Weights vary from 77 lbs. to 212 lbs. capable of exerting from 12 to 70 tons pull or press.

Machine complete is a general purpose tool of many uses, easily transported to any part of the field.

Replaces and removes Pump Liners, Valves, gears, clutches and has many other uses.

Atlas Catalog for details.

ATLAS ENGINEERING WORKS
5206 NAVIGATION BLVD.
HOUSTON, TEXAS

634 CANDLE POWER

in the **BEAM** of a **JUSTRITE SAFETY LANTERN**

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Approved by U. S. Bureau of Mines and Underwriters' Laboratories.

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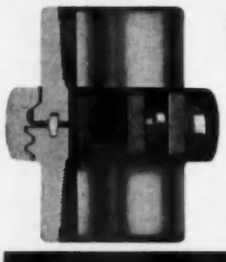
See Page 1325 in COMPOSITE CATALOG. 1941

JUSTRITE MANUFACTURING CO.
2061 Southport Chicago, Ill.

Red-Rex THE SIMPLE ONE BOLT UNION



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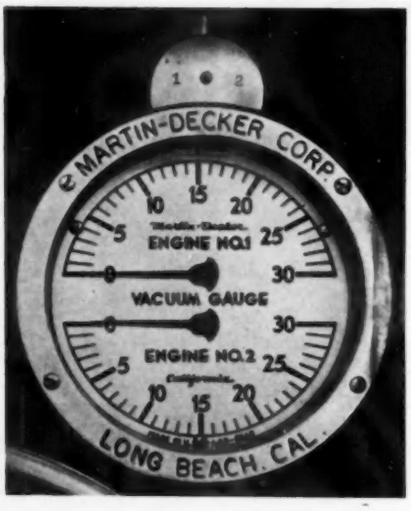
FOUNDERS · MANUFACTURERS · MACHINISTS
Beaumont, Texas, U. S. A.



will indicate approximately 21 inches. For each thousand feet above sea level that the rig is located, 1-inch vacuum should be deducted from the readings.

Tulsa Exposition Indefinitely Postponed

The International Petroleum Exposition, scheduled for May, 1942, will not be held, exhibitors and directors decided at a meeting in Tulsa, December 8.

Decision was reached to postpone the show due to the war and to the belief that oil companies would not be able to send as many representatives to the exhibit as in normal times.

The group, representing a majority of exhibitors, decided to leave with the exposition the money that already has been paid for space with the understanding that exhibitors be billed, whenever the show is held, only for their prorata share of maintenance expenses. Exhibitors withdrawing money lose priority on contracted space, but will share in maintenance costs, it was decided.

Although no future exhibition date was set, appointment of a committee of 9 to 12 members representing all branches of the oil industry was approved to advise the show executive committee concerning future dates or policy.

Last summer the executive committee of the Oil-World Exposition at Houston voted to recommend to the directors of the exposition that if the International Petroleum Exposition decided to postpone its 1942 show, the Oil-World Exposition would agree to date its exposition so as not to conflict with the dates selected by Tulsa—in other words, Houston would date its show so as to follow by a year the next Tulsa exposition.

In the meantime, the regular staff of Oil-World Exposition at Houston has been discontinued and correspondence is being handled by the non-paid staff of the executive committee.

Indicating Instruments

The Meriam Company, 1955 West 112th Street, Cleveland, Ohio, has issued catalog No. C-10 describing in compact form the line of U-type and well-type manometers, draft gauges, flow meters, mercury pressure gauges, tank gauges and all accessories for accurately measuring pressures, vacuums and flows of liquids and gases.

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